

15



radio amateur

# callbook

magazine

## AUTUMN:

*September days are here . . . . .  
With Summer's best of wealth  
And autumn's best of cheer*



## fall 1964

- 7,972 new licenses issued by FCC since the Summer 1964 edition.
- Over 21,000 changes in listings.
- 265,858 licensed radio amateurs in the U.S.A.
- Radio Amateur prefixes of the world, with map.
- Great circle bearings; "Q" and "Z" signals; postal information.
- A.R.R.L. countries list, phonetic alphabet, DX operating code.
- Time conversion chart, telegraphers' abbreviations . . . and other features.

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## may we put in a plug for the transceive capability of the SX-117?

Before buying your next receiver, consider this fact: *The SX-117 alone* provides the built-in capability of transceive operation with the HT-44 transmitter, at the flick of a switch.

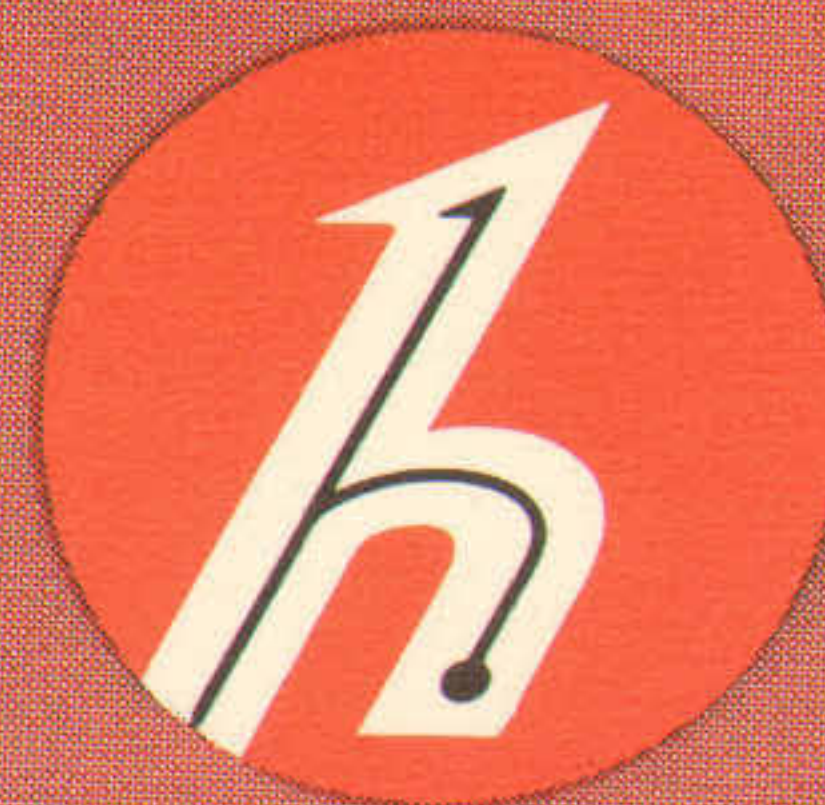
We hardly need list the circumstances under which such versatility is highly desirable, if not essential, to most amateurs.

This is just one of many good, solid reasons why the SX-117 is the most popular amateur receiver we've ever engineered.

For instance: You get all important coverage from 3.0 Mc. through 30 Mc. (five crystals provided) plus four positions from 85 kc.—3 Mc. for use with HA-10 low freq. tuner.

You get *three-step variable selectivity*, including a transmitter-type V.F.O. that can be *locked on frequency* . . . less than  $1 \mu v$  sensitivity . . . extreme electrical and mechanical *stability* . . . up to 50 db. attenuation to unwanted heterodyne in the pass band.

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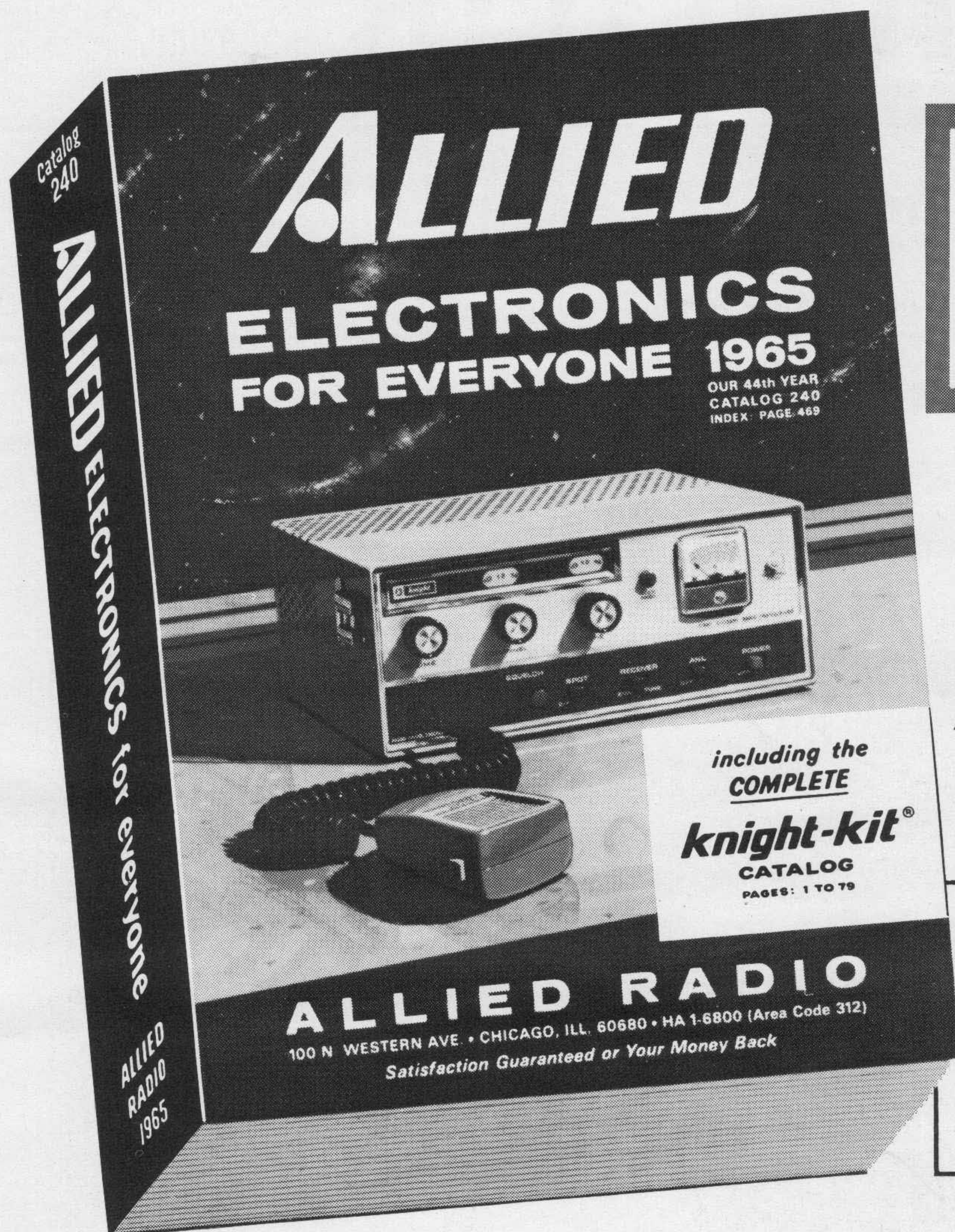


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Export: Hallicrafters, International Dept., Commercial Div.





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## RADIO AMATEURS OF THE U. S. A.

Volume 42  
Number 3

ALL K AND W CALLS

Fall 1964

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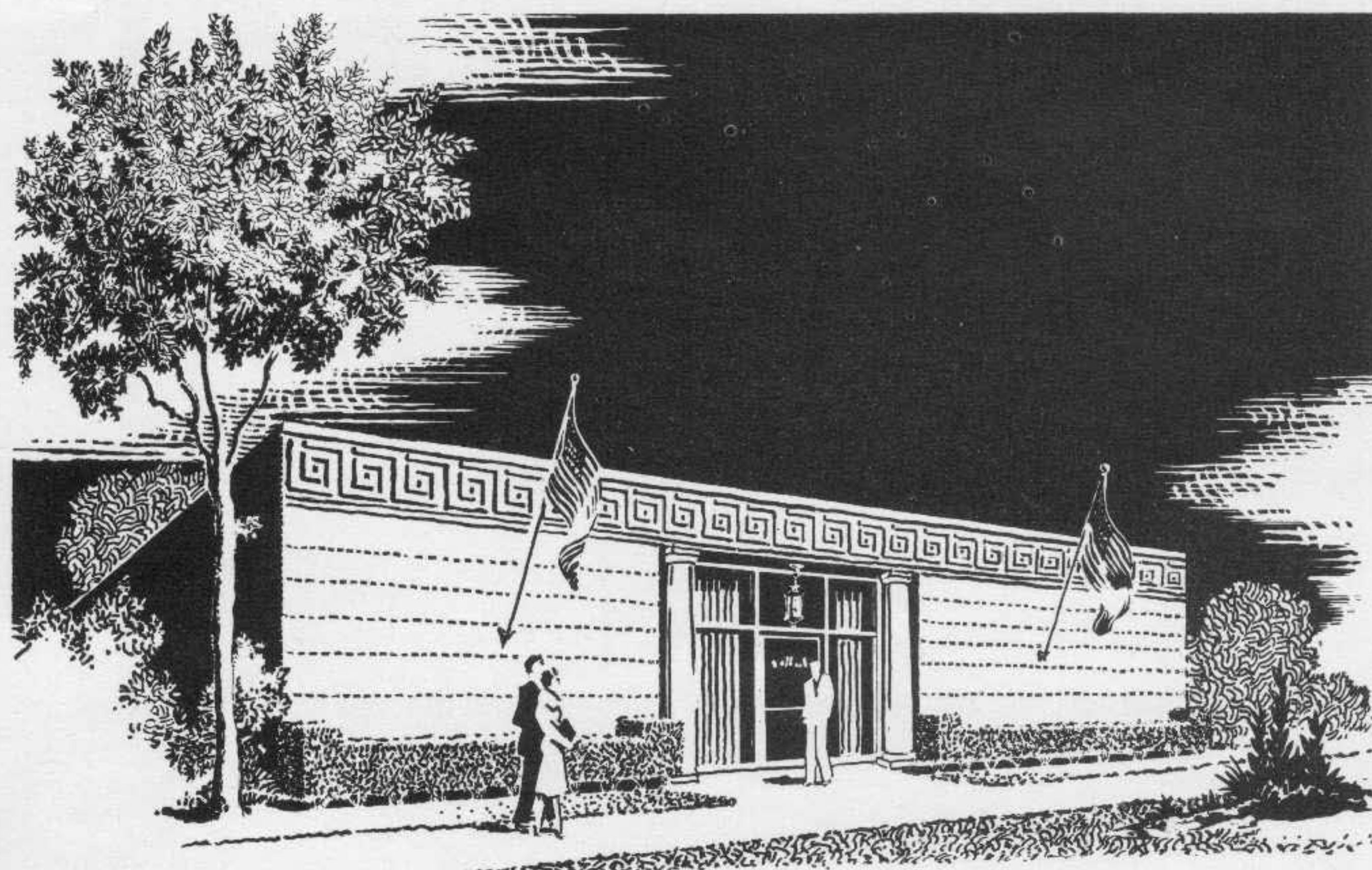
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The Home of RADIO AMATEUR CALLBOOK . . . . a modern air-conditioned building planned for maximum efficiency in the production of Callbooks and Callbook products.

A year around staff, through the use of electronic data processing equipment, evaluates and compiles the directory information received daily from all over the world. Extensive library and historical records are maintained to provide the most complete and accurate Callbook possible to produce.

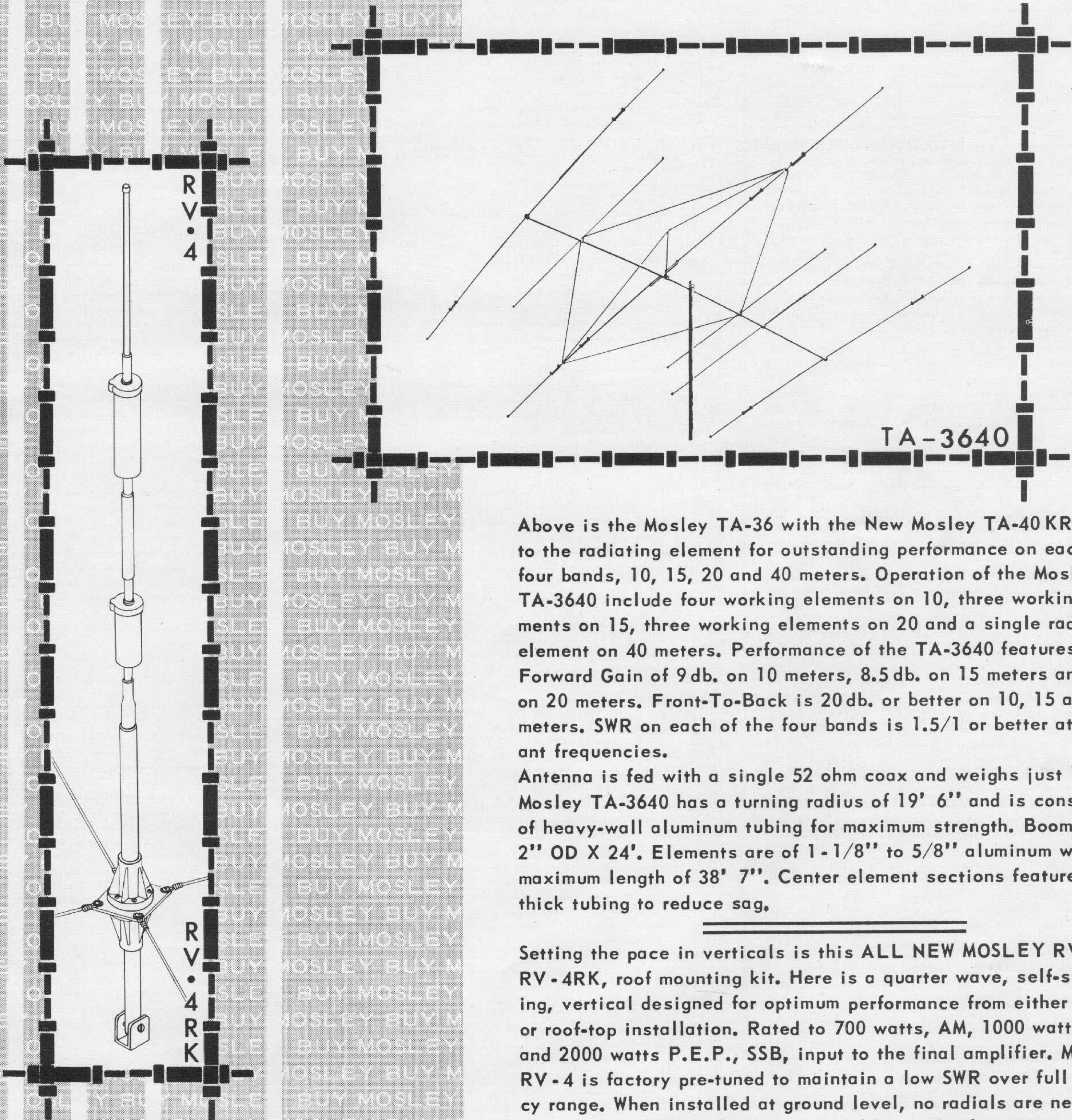
The Callbook had its beginning back in 1920 when there were just a few radio amateurs. Today, Callbooks and Callbook products are in use in every country of the world.



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### BEAMS & VERTICALS



Above is the Mosley TA-36 with the New Mosley TA-40 KR added to the radiating element for outstanding performance on each of four bands, 10, 15, 20 and 40 meters. Operation of the Mosley TA-3640 include four working elements on 10, three working elements on 15, three working elements on 20 and a single radiating element on 40 meters. Performance of the TA-3640 features a Forward Gain of 9 db. on 10 meters, 8.5 db. on 15 meters and 8 db. on 20 meters. Front-To-Back is 20 db. or better on 10, 15 and 20 meters. SWR on each of the four bands is 1.5/1 or better at resonant frequencies.

Antenna is fed with a single 52 ohm coax and weighs just 79 lbs. Mosley TA-3640 has a turning radius of 19' 6" and is constructed of heavy-wall aluminum tubing for maximum strength. Boom is of 2" OD X 24'. Elements are of 1-1/8" to 5/8" aluminum with a maximum length of 38' 7". Center element sections feature double thick tubing to reduce sag.

Setting the pace in verticals is this ALL NEW MOSLEY RV-4 and RV-4RK, roof mounting kit. Here is a quarter wave, self-supporting, vertical designed for optimum performance from either ground or roof-top installation. Rated to 700 watts, AM, 1000 watts, CW and 2000 watts P.E.P., SSB, input to the final amplifier. Mosley RV-4 is factory pre-tuned to maintain a low SWR over full frequency range. When installed at ground level, no radials are needed if a good ground is provided at vertical base. Roof-top mounting requires Mosley RV-4RK which includes radial wire for efficient operation. RV-4 is fed with a single 52 ohm coax and stands just 25' 2 5/8" high including roof mounting kit. RV-4 weighs 14 1/2 lb. pounds including roof mounting kit.

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# A. R. R. L. COUNTRIES LIST

The ARRL Postwar Countries List is the official standard used in connection with the DX Century Club. To qualify for the DX Century Club Award, an applicant must submit confirmations from at least 100 different countries contacted after November 15, 1945, in accordance with the Postwar DXCC Rules. Copies of the DXCC Rules will be furnished by ARRL on request.

AC3	Sikkim	KM6	Midway Islands	VP8	(See CE9)
AC4	Tibet	KP4	Puerto Rico	VP8	Falkland Islands
AC5	Bhutan	KP6	Palmyra Group, Jarvis Island	VP8, LU-Z	South Georgia Islands
AP	East Pakistan	KR6	Ryukyu Islands	VP8, LU-Z	South Orkney Islands
AP	West Pakistan	KS4B	Serrana Bank & Roncador Cay	VP8, LU-Z	South Sandwich Islands
BV, (C3)	Formosa	KS4	Swan Islands	VP8, LU-Z, CE9	South Shetland Islands
BY, (C)	China	KS6	American Samoa	VP9	Bermuda Islands
C9	Manchuria	KV4	Virgin Islands	VQ1	Zanzibar
CE	Chile	KW6	Wake Island	VQ2	Northern Rhodesia
CE9, KC4, LU-Z, VKφ, VP8, ZL5	Antarctica	KX6	Marshall Islands	VQ3	(See 5H3)
CE9	(See VP8)	KZ5	Canal Zone	VQ4	Kenya
CEφA	Easter Island	LA	Jan Mayen	VQ5	(See 5X5)
CEφZ	Juan Fernandez Archipelago	LA	Norway	VQ6	British Somaliland
CM, CO	Cuba	LA	Svalbard	VQ8	Cargadas Carajos
CN2	Tangiers	LU	Argentina	VQ8	Chagos Islands
CN2, CN8, CN9	Morocco	LU-Z	(See CE9)	VQ8	Mauritius
CP	Bolivia	LX	Luxembourg	VQ8	Rodriguez Island
CR4	Cape Verde Islands	LZ	Bulgaria	VQ9	Aldabra
CR5	Portuguese Guinea	M1	San Marino	VQ9	Seychelles
CR5	Principe, Sao Thome	MP4	Bahrein	VR1	British Phoenix Islands
CR6	Angola	MP4	Qatar	VR1	Gilbert & Ellice Islands & Ocean Island
CR7	Mozambique	MP4M, VS9	Sultanate of Muscat & Oman	VR2	Fiji Islands
CR8	Damao, Diu	MP4	Trucial Oman	VR3	Fanning & Christmas Islands
CR8	Goa	OA	Peru	VR4	Solomon Islands
CR8, CRφ	Portuguese Timor	OD5	Lebanon	VR5	Tonga Islands
CR9	Macao	OE	Austria	VR6	Pitcairn Island
CT1	Portugal	OH	Finland	VS1	Singapore
CT2	Azores	OHφ	Aland Islands	VS4	Sarawak
CT3	Madeira Islands	OK	Czechoslovakia	VS5	Brunei
CX	Uruguay	ON4	Belgium	VS6	Hong Kong
DJ, DL, DM	Germany	OX, KG1	Greenland	VS9	Aden & Socotra
DU	Philippine Islands	OY	Faeroes	VS9K	Kamran Is.
EA	Spain	OZ	Denmark	VS9	Maldives Islands
EA6	Balearic Islands	PAφ, P11	Netherlands	VS9	(See MP4)
EA8	Canary Islands	PJ	Netherlands Antilles	VU	Andaman and Nicobar Islands
EA9	Ifni	PJ2M	Sint Maarten	VU	India
EA9	Rio de Oro	PK1,2,3	Java	VU	Laccadive Islands
EA9	Spanish Morocco	PK4	Sumatra	XE, XF	Mexico
EAφ	Spanish Guinea	PK5	Netherlands Borneo	XE4	Revilla Ggedo
EI	Republic of Ireland	PK6	Celebes & Molucca Is.	XT	Voltaic Rep.
EL	Liberia	PX	Andorra	XW8	Laos
EP	Iran	PY	Brazil	XZ2	Burma
ET2	Eritrea	PYφ	Fernando de Noronha	YA	Afghanistan
ET3	Ethiopia	PYφ	Trindade & Martim Vaz Islands	YI	Iraq
F	France	PZ1	Surinam	YJ	(See FU8)
FA	Algeria	SL, SM	Sweden	YK	Syria
FB8	Amsterdam & St. Paul Islands	SP	Poland	YN, YNφ	Nicaragua
FB8	Comoro Islands	ST2	Sudan	YO	Roumania
FB8	Kerguelen Islands	SU	Egypt	YS	Salvador
FB8	Tromelin Island	SV	Crete	YU	Yugoslavia
FC (Unofficial)	Corsica	SV	Dodecanese	YV	Venezuela
FF8	French West Africa	TA	Turkey	YVφ	Aves Island
FG7	Guadeloupe	TF	Iceland	ZA	Albania
F18	French Indo-China	TG	Guatemala	ZB1	Malta
FK8	New Caledonia	TI	Costa Rica	ZB2	Gibraltar
FL8	French Somaliland	TI9	Cocos Island	ZC4	(See 5B4)
FM7	Martinique	TJ	Cameroons	ZC5	British North Borneo
FN	French India	TL	Central African Rep.	ZC6	Palestine
FO8	Clipperton Island	TN	Congo Rep.	ZD1	(See 9L1)
FO8	French Oceania	TR	Gabon Rep.	ZD3	Gambia
FP8	St. Pierre & Miquelon Islands	TT	Chad Rep.	ZD4	(See 9G1)
FQ8	French Equatorial Africa	TU	Ivory Coast	ZD4	Gold Coast, Togoland
FR7	Reunion Island	TY	Dahomey Rep.	ZD6	Nyasaland
FS7	Saint Martin	TZ	Mali Rep.	ZD7	St. Helena
FU8, YJ1	New Hebrides	UA1-6, UN1	European Russian	ZD8	Ascension Island
FW8	Wallis & Futuna Islands	UA1	Socialist Federated Soviet Republic	ZD9	Tristan da Cunha & Gough Island
FY7	French Guiana & Inini	UA2	Franz Josef Land	ZE	Southern Rhodesia
G	England	UA9, φ	Kaliningradsk	ZK1	Cook Islands
GC	Channel Islands	UB5, UT5	Asiatic Russian S.F.S.R.	ZK1	Manihiki Islands
GD	Isle of Man	UC2	White Russian Soviet Socialist Republic	ZK2	Niue
GI	Northern Ireland	UD6	Azerbaijan	ZL	Auckland & Campbell Islands
GM	Scotland	UF6	Georgia	ZL	Chatham Islands
GW	Wales	UG6	Armenia	ZL	Kermadec Islands
HA	Hungary	UH8	Turkoman	ZL5	New Zealand
HB	Switzerland	UI8	Uzbek	ZL5	(See CE9)
HC	Ecuador	UJ8	Tadzhik	ZM6	Western Samoa
HC8	Galapagos Islands	UL7	Kazakh	ZM7	Tokelaus
HE	Liechtenstein	UM8	Kirghiz	ZP	Paraguay
HH	Haiti	UN1	Karelo-Finnish Rep.	ZS1, 2, 4, 5, 6	South Africa
HI	Dominican Republic	UO5	Moldavia	ZS2	Prince Edward & Marion Islands
HK	Colombia	UP2	Lithuania	ZS3	Southwest Africa
HKφ	Bajo Nuevo	UQ2	Latvia	ZS7	Swaziland
HKφ	Malpelo Island	UR2	Estonia	ZS8	Basutoland
HKφ	San Andres and Providencia	VE, VO	Canada	ZS9	Bechuanaland
HL, HM	Korea	VK	Australia (including Tasmania)	3A	Monaco
HP	Panama	VK4	Lord Howe Island	3V8	Tunisia
HR	Honduras	VK9, ZC3	Willis Islands	3W8, XV5	Vietnam
HS	Thailand	VK9	Christmas Island	4S7	Ceylon
HV	Vatican City	VK9	Cocos Islands	4W1	Yemen
HZ	Saudi Arabia	VK9	Nauru Island	4X4	Israel
IL, IT1	Italy	VK9	Norfolk Island	5A	Libya
II	Trieste	VK9	Papua Territory	5B4	Cyprus
IS	Italian Somaliland	VK9	Territory of New Guinea	5H3	Tanganyika
IS1	Sardinia	VKφ	(See CE9)	5N2, ZD2	Nigeria
JA, KA	Japan	VKφ	Heard Island	5R8	Malagasy Republic
JT1	Mongolia	VKφ	Macquarie Island	5T	Mauritania
JY	Jordan	VP1	British Honduras	5U7	Niger Republic
JZφ	Netherlands New Guinea	VP2	Anguilla	5V	Togo Republic
K, W	United States of America	VP2	Antigua, Barbuda	5X5	Uganda
KAφ, KG6I	Bonin & Volcano Islands	VP2	British Virgin Islands	6O1,2	Somali Republic
KB6	Baker, Howland & American Phoenix Islands	VP2	Dominica	6W8, FF8	Senegal Republic
KC4	(See CE9)	VP2	Grenada & Dependencies	7G1	Republic of Guinea
KC4	Navassa Island	VP2	Montserrat	9G1, ZD4	Ghana
KC6	Eastern Caroline Islands	VP2	St. Kitts, Nevis	9K2	Kuwait
KC6	Western Caroline Islands	VP2	St. Lucia	9K3	Kuwait/Saudi Arabia Neutral Zone
KG1	(See OX)	VP2	St. Vincent & Dependencies	9L1	Sierre Leone
KG4	Guantanamo Bay	VP3	British Guiana	9M2	Malaya
KG6	Marcus Island	VP4	Trinidad & Tobago	9N1	Nepal
KG6	Mariana Islands	VP5	Cayman Islands	9Q5, OQ5, φ	Republic of Congo
KG6	Guam	VP5	Jamaica	9S4	Saar
KG6I	(See KAφ)	VP5	Turks & Caicos Islands	9U5	Burundi
KH6	Hawaiian Islands	VP6	Barbados	9U5	Rwanda
KH6	Kure Island	VP7	Bahama Islands	9U5	Ruanda-Urundi
KJ6	Johnston Island				Cambodia
KL7	Alaska				

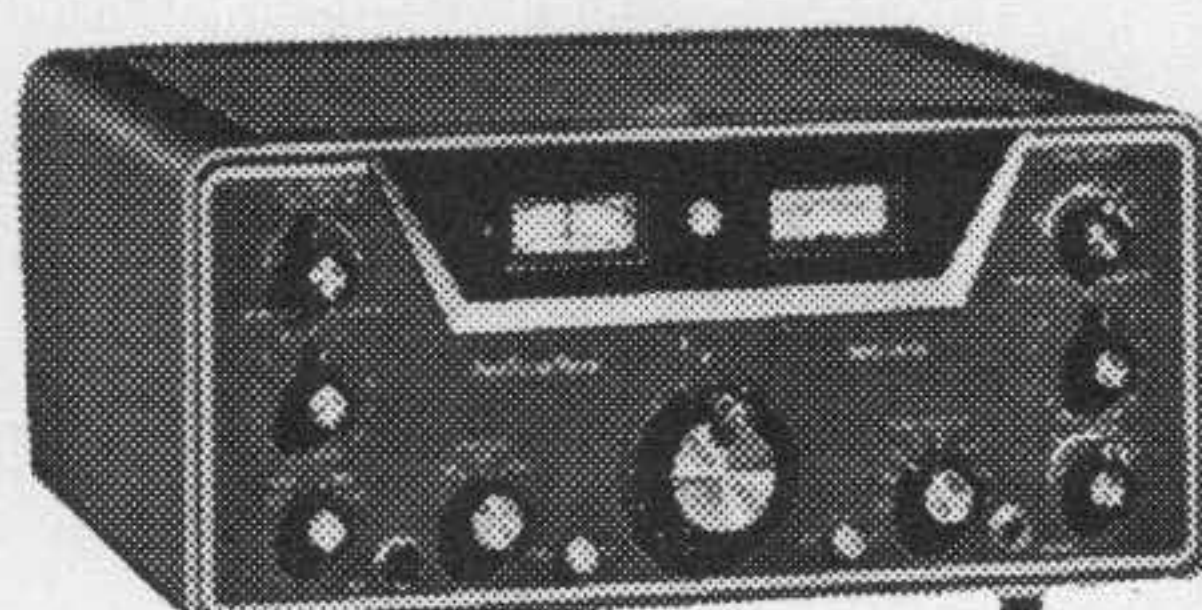


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SX-140 receiver .....139.95  
HT-40 transmitter .....109.95  
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# INTERNATIONAL RADIO AMATEUR PREFIXES

The following prefixes are listed in alphabetical order for convenience in locating the country when DX calls are heard.

AC3..... Sikkim  
AC4..... Tibet  
AC5..... Bhutan  
AP..... Pakistan

BV..... Formosa  
BY..... China  
BY9..... Manchuria

CE..... Chile  
CE9..... South Shetland Is.  
CE0A..... Easter Is.  
CE0Z..... Juan Fernandez Is.  
CM,CO..... Cuba  
CN..... Morocco  
CP..... Bolivia  
CR4..... Cape Verde Is.  
CR5..... Portuguese Guinea, Sao Tome & Principe Is.  
CR6..... Angola  
CR7..... Mozambique  
CR8..... Goa  
CR8..... Timor Is. (Portuguese)  
CR9..... Macao  
CT1..... Portugal  
CT2..... Azores Is.  
CT3..... Madeira Is.  
CX..... Uruguay

DJ,DL..... West German Federal Rep.  
DM..... East German Democratic Rep.  
DU..... Philippine Is.

EA..... Spain  
EA6..... Balearic Is.  
EA8..... Canary Is.  
EA9..... Spanish Sahara, Ifni, Ceuta y Melilla  
EA0..... Rio Muni  
EI..... Ireland  
EL..... Liberia  
EP,EQ..... Iran  
ET3..... Ethiopia

F..... France  
FB8..... Austral and Antarctic French Lands,  
Amsterdam, St. Paul, Crozet, Kerguelen, Tromelin Is.  
FC..... Corsica  
FG7..... Guadeloupe Is.  
FH8..... Comoro Is.  
FK8..... New Caledonia  
FL8..... French Somaliland  
FM7..... Martinique  
FO8..... French Oceania, Clipperton Is.  
FP8..... St. Pierre & Miquelon Is.  
FR7..... Reunion Is.  
FS7..... Saint Martin  
FU8..... New Hebrides  
FW8..... Wallis & Futuna Is.  
FY7..... French Guiana

G..... England  
GC..... Channel Is.  
GD..... Isle of Man  
GI..... Northern Ireland  
GM..... Scotland  
GW..... Wales

HA..... Hungary  
HB..... Switzerland  
HB0..... Liechtenstein  
HC..... Ecuador  
HC8..... Galapagos Is.  
HD1..... Manihiki Is.  
HH..... Haiti  
HI..... Dominican Republic  
HK..... Colombia  
HK0..... San Andres & Providencia Is.  
HM,HL9..... Korea  
HP..... Panama  
HR..... Honduras  
HS..... Thailand  
HV..... Vatican City  
HZ..... Saudi Arabia

I..... Italy  
II..... Trieste  
IS..... Sardinia  
IT..... Sicily

JA..... Japan  
JT1..... Mongolia  
JY..... Jordan  
JZ0..... Netherlands New Guinea (West Irian)

K..... United States  
KA..... U.S. Personnel in Japan  
KB6..... Baker, Canton, Enderbury,  
Howland & Phoenix Is.  
KC4..... Navassa Is.  
KC4AA, KC4US..... Antarctica  
KC6..... Caroline Is.  
KG1..... U.S. Personnel in Greenland  
KG4..... Guantanamo Bay, Cuba  
KG6..... Mariana Is. (Guam)

KG6I..... Volcano Is.  
KG6S..... Saipan Is.  
KG6T..... Tinian Is.  
KH6..... Hawaii  
KJ6..... Johnston Is.  
KL7..... Alaska  
KM6..... Midway Is.  
KP4..... Puerto Rico  
KP6..... Jarvis & Palmyra Is.  
KR6, KR8..... Ryukyu Is. (Okinawa)  
KS4..... Swan Is.  
KS4B..... Serrana Bank & Roncador Cay  
KS6..... U.S. Samoa  
KV4..... Virgin Is.  
KW6..... Wake Is.  
KX6..... Marshall Is.  
KZ5..... Canal Zone

LA..... Norway, Svalbard, Jan Mayen Is.  
LU..... Argentina  
LX..... Luxembourg  
LZ..... Bulgaria

M1..... San Marino  
MP4..... Bahrain and Das Is.,  
Muscat & Oman, Qatar, Trucial Oman

OA..... Peru  
OD5..... Lebanon  
OE..... Austria  
OH..... Finland  
OH0..... Aland Is.  
OK..... Czechoslovakia  
ON..... Belgium  
OX..... Greenland  
OY..... Faeroe Is.  
OZ..... Denmark

PA,PI..... Netherlands  
PJ..... Netherlands Antilles  
PJ2M..... Saint Maarten  
PJ5..... Saba Is.  
PK..... Indonesia  
PK1..... Java  
PK4..... Sumatra  
PK5..... Borneo  
PK6..... Celebes & Molucca Is.  
PX1..... Andorra  
PY..... Brazil  
PY7..... Fernando de Noronha Is.  
PY0..... Trindade & Martim Vaz Is.  
PZ..... Surinam

SL,SM..... Sweden  
SP..... Poland  
ST..... Sudan  
SU..... Egypt  
SV..... Crete, Greece  
SV5..... Dodecanese Is.

TA,TC..... Turkey  
TF..... Iceland  
TG..... Guatemala  
TI..... Costa Rica  
TI9..... Cocos Is.  
TJ8..... Cameroun  
TL8..... Central African Republic  
TN8..... Republic of Congo  
TR8..... Gabon  
TT8..... Chad  
TU2..... Ivory Coast  
TY2..... Dahomey  
TZ..... Mali Republic

UA1,3,4,6..... European Russian Socialist  
Federated Soviet Republic

UA9,0..... Asiatic Russian S.F.S.R.  
UB5..... Ukraine  
UC2..... White Russian S.S.R.  
UD6..... Azerbaijan  
UF6..... Georgia  
UG6..... Armenia  
UH8..... Turkmen  
UI8..... Uzbek  
UJ8..... Tadzhik  
UL7..... Kazakh  
UM8..... Kirghiz  
UN1..... Karelo-Finnish Republic  
UO5..... Moldavia  
UP..... Lithuania  
UQ..... Latvia  
UR..... Estonia

VE..... Canada  
VK..... Australia  
VK2..... Lord Howe Is.  
VK7..... Tasmania  
VK9..... New Guinea, Papua,  
Christmas, Cocos-Keeling, Nauru, Norfolk Is.  
VK0..... Heard & Macquarie Is., Antarctica  
VO1..... Newfoundland  
VO2..... Labrador  
VP1..... British Honduras

VP2..... Federation of British Territories  
in the Caribbean  
VP3..... British Guiana  
VP4..... Trinidad & Tobago Is.  
VP5..... Cayman, Turks & Caicos Is.  
VP6..... Barbados Is.  
VP7..... Bahama Is.  
VP8..... Falkland, South Georgia, South Orkney,  
South Sandwich, South Shetland Is., Graham Coast  
VP9..... Bermuda Is.  
VQ1..... Zanzibar  
VQ2..... Northern Rhodesia  
VQ8..... Chagos, Mauritius & Rodriguez Is.  
VQ9..... Seychelles Is.  
VR1..... British Phoenix, Ellice, Gilbert & Ocean Is.  
VR2..... Fiji Is.  
VR3..... Fanning, Line Is.  
VR4..... Solomon Is.  
VR5..... Tonga Is.  
VR6..... Pitcairn Is.  
VS1..... Singapore  
VS4..... Sarawak  
VS5..... Brunei  
VS6..... Hong Kong  
VS9..... Aden, Kamaran, Maldives, Socotra Is.  
VU..... India  
VU4..... Laccadive Is.  
VU5..... Andaman & Nicobar Is.

W..... United States

XE..... Mexico  
XE4..... Revillagigedo Is.  
XT2..... Upper Volta  
XU..... Cambodia  
XW8..... Laos  
XZ..... Burma

YA..... Afghanistan  
YI..... Iraq  
YJ..... New Hebrides  
YK..... Syria  
YN..... Nicaragua  
YO..... Rumania  
YS..... El Salvador  
YT,YU..... Yugoslavia  
YV..... Venezuela

ZA..... Albania  
ZB1..... Malta  
ZB2..... Gibraltar  
ZC5..... North Borneo (Sabah)  
ZD3..... Gambia  
ZD6..... Nyasaland  
ZD7..... Saint Helena  
ZD8..... Ascension Is.  
ZD9..... Tristan da Cunha & Gough Is.  
ZE..... Southern Rhodesia  
ZK1..... Cook Is.  
ZK2..... Niue & Aitutaki Is.  
ZL..... New Zealand  
ZL1..... Kermadec  
ZM7..... Tokelau Is.  
ZP..... Paraguay  
ZS..... South Africa  
ZS2..... Prince Edward & Marion Is.  
ZS3..... South-West Africa  
ZS7..... Swaziland  
ZS8..... Basutoland  
ZS9..... Bechuanaland

3A2..... Monaco  
3V8..... Tunisia  
3W8..... Vietnam  
4S7..... Ceylon  
4U1..... United Nations, Geneva  
4W1..... Yemen  
4X4..... Israel  
5A..... Libya  
5B4..... Cyprus  
5H3..... Tanganyika  
5N2..... Nigeria  
5R8..... Malagasy Republic  
5T5..... Mauritania  
5U7..... Niger  
5V4..... Togo  
5W1..... Western Samoa  
5X5..... Uganda  
5Z4..... Kenya  
60..... Somali Republic  
6W8..... Senegal  
6Y5..... Jamaica  
7G1..... Republic of Guinea  
7X2..... Algeria  
9A1..... San Marino  
9G1..... Ghana  
9K2..... Kuwait  
9L1..... Sierra Leone  
9M2..... Federation of Malaya  
9N1..... Nepal  
9Q5..... Republic of the Congo  
9U5..... Burundi  
9X5..... Rwanda





GONSET SIDEWINDER  
TRANSCIEVER Model 900A

## SOLID STATE "SCOOP" FROM GONSET!

### FIRST AND ONLY TRANSISTORIZED SSB-AM-CW TRANSCIEVER FOR MOBILE, PORTABLE AND FIXED COMMUNICATIONS

The totally new Gonset Model 900A *Sidewinder* is the first and only transistorized SSB-AM-CW transceiver (except mixer, driver, final stages in transmitter) to provide complete coverage of the 2 meter amateur band in 4 segments 1 MC wide. Yet it's so compact it fits quickly under the dash of the newest cars! Transistor design makes possible a primary power requirement in the receiver of less than 1/2 amp! Separate power supply accessories snap-fasten jiffy-quick to back of transceiver, or may be used for remote installation. Here's the trouble-free, solid state transceiver with power to spare for any fixed, portable or mobile application!

For complete information, visit your Gonset Distributor, or write Dept. RA-9.

#### CHECK THESE HIGH-PERFORMANCE SPECIFICATIONS:

##### TRANSMITTER: Transistorized (except for mixer, driver, final states)

- **Frequency Range:** 144-148 MC • **Power Input:** 20 watts PEP SSB, 6 watts AM, 20 watts CW • **Spurious Suppression:** -50 db • **Carrier Suppression:** -50 db on SSB • **Unwanted Sideband Suppression:** -40 db • **Stages:** 3 stage MIC Amplifier; 15 MC Mixer • **Diodes:** 2 Balanced Modulator; Meter Rectifier • **Tubes:** 6EA8 Doubler, Mixer; 12BY7A Driver; 6360 Power Amplifier

**RECEIVER: All-transistorized** • **Frequency Stability:** Highly stable; utilizes same VFO as transmitter • **Sensitivity:** 1/2 microvolts or better for 10 db  $\frac{S}{N}$  • **Selectivity:** Lattice crystal filter for both receiver and transmitter • **Audio Output:** 3.0 watts • **Spurious Suppression:** -50 db or better • **Image Rejection:** -50 db (receiver and transmitter utilize double conversion) • **Stages:** RF; Mixer; Doubler; 9 MC Mixer; 2 9 MC IF; SSB, AM, CW Detector; Audio Driver; Push-Pull Audio Output • **Diodes:** AM Detector; AGC Detector; RF Gain Control

**TRANSCIEVER:** 9 MC BFO; 15 MC IF; High Frequency Crystal Oscillator; VFO; VFO Regulator; AGC; 9 MC IF • **Dimensions:** 8 7/8" W., 4 7/8" H., 7 1/4" D. • **Wt.:** 10 lbs.-8 oz. • **POWER SUPPLY:** **Dimensions:** (AC or DC) 8 7/8" W., 4 7/8" H., 5 1/4" D. • **Wt.:** 13 lbs.-8 oz.

**PRICE:** TRANSCIEVER: \$399.50 Amateur Net; POWER SUPPLY: AC-\$67.75 Amateur Net • DC-\$79.50 Amateur Net



© ALTEC LANSING CORPORATION

## GONSET, INC.

ALTEC LANSING CORPORATION

LTV A Subsidiary of Ling-Temco-Vought, Inc.

1515 S. MANCHESTER AVENUE, ANAHEIM, CALIFORNIA

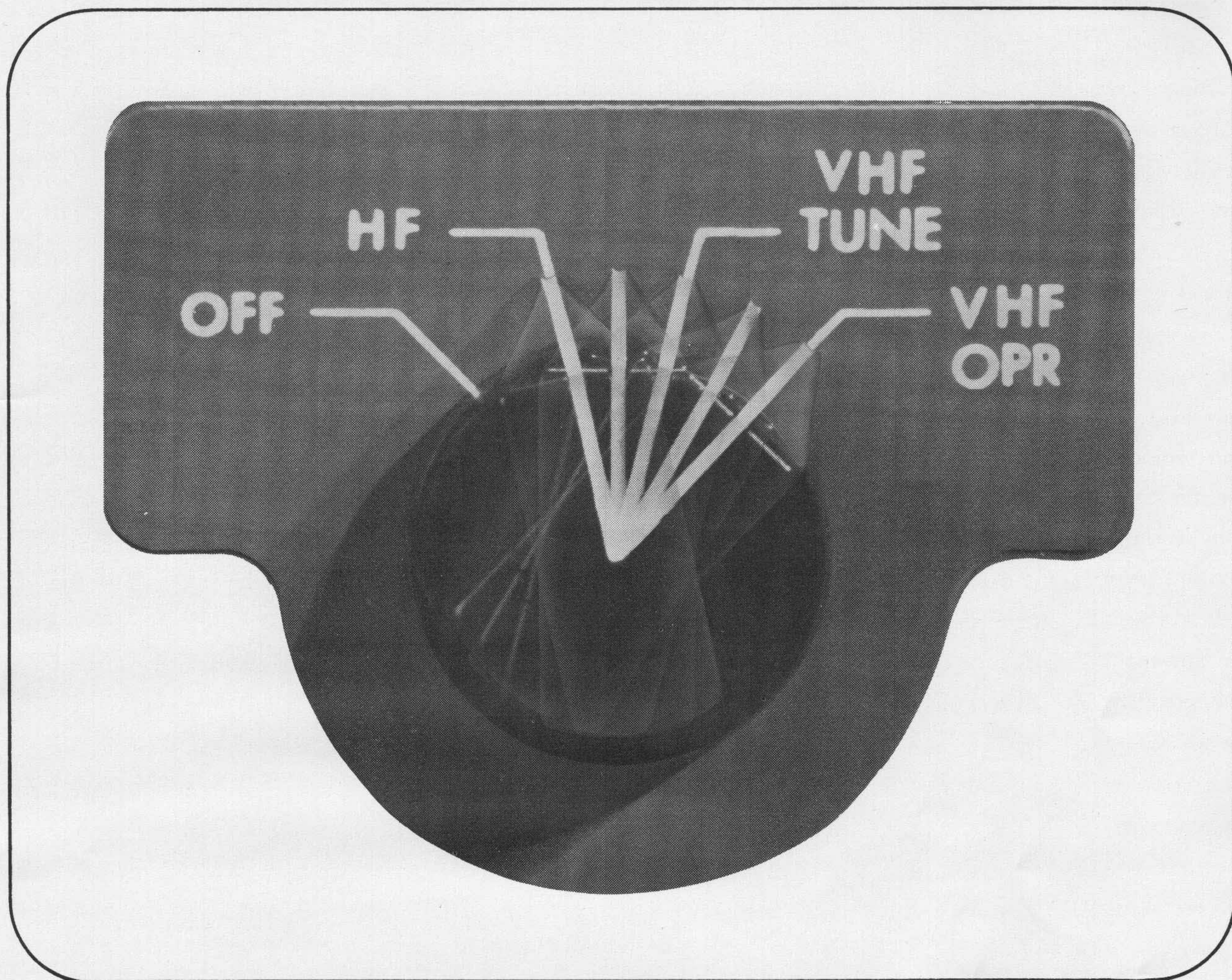


# PREFIXES—BY COUNTRIES

The following countries listed in alphabetical order by country show international radio amateur prefixes. Characters in ( ) designate the continent and zone in which the country is located. Abbreviations are as follows: A—Asia, AF—Africa, E—Europe, NA—North America, O—Oceania, SA—South America.

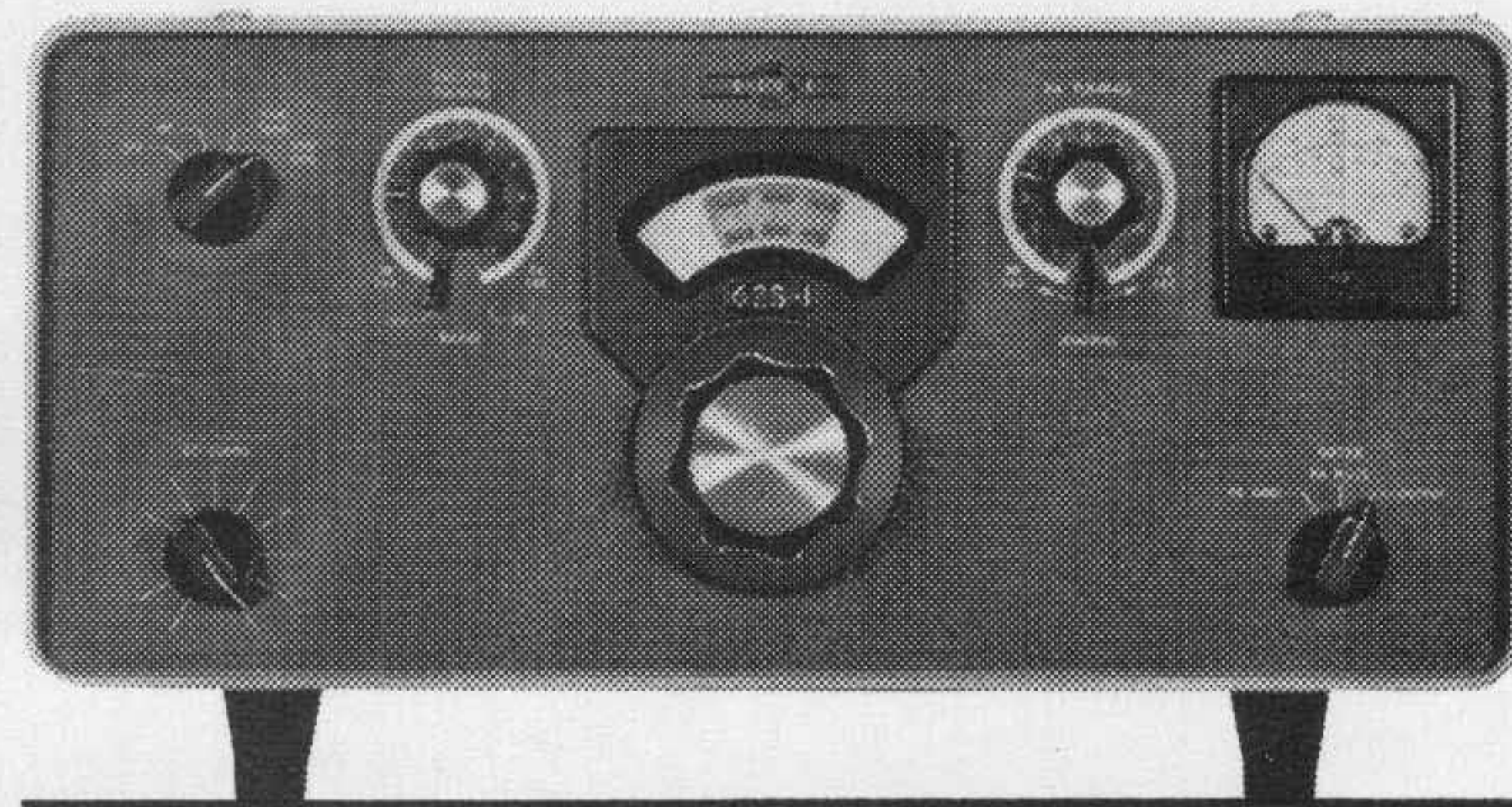
Aden (South Arabia)	(A-21)	VS9	Guiana, British	(SA-9)	VP3	Reunion Is.	(AF-39)	FR7
Afghanistan	(A-21)	YA	Guiana, French	(SA-9)	FY7	Revillagigedo Is.	(NA-6)	XE4
Aland Is.	(E-14)	OH0	Guinea, Portuguese	(AF-35)	CR5	Rhodesia, Northern	(AF-36)	VQ2
Alaska	(NA-1)	KL7	Guinea, Republic of	(AF-35)	7G1	Rhodesia, Southern	(AF-38)	ZE
Albania	(E-15)	ZA				Rio Muni	(AF-36)	EA0
Algeria	(AF-33)	7X2	Haiti	(NA-8)	HH	Rodriguez Is.	(AF-39)	VQ8
Amsterdam & St. Paul Is.	(AF-39)	FB8	Hawaii	(O-31)	KH6	Rumania	(E-20)	Y0
Andaman & Nicobar Is.	(A-26)	VU5	Heard Is.	(O-39)	VK0	Rwanda	(AF-36)	9X5
Andorra	(E-14)	PX1	Honduras	(NA-7)	HR	Ryukyu Is.	(A-25)	KR6, KR8
Angola	(AF-36)	CR6	Hong Kong	(A-24)	VS6			
Antarctica	CE9, KC4AA, KC4US, LA-/G, LU-/Z		Howland Is.	(O-31)	KB6			
	OR4, UA1, VK0, VP8, ZL5, 8J1		Hungary	(E-15)	HA			
Argentina	(SA-13)	LU				Saba Is.	(NA-8)	PJ5
Ascension Is.	(AF-36)	ZD8	Iceland	(E-40)	TF	Saint Helena Is.	(AF-36)	ZD7
Austral & French Antarctic	(A-39)	FB8	Ifni	(AF-33)	EA9	Saint Maarten Is.	(NA-8)	PJ2M
Australia	(O-29 & 30)	VK	India	(A-22)	VU	Saint Martin Is.	(NA-8)	FS7
Austria	(E-15)	OE	Indonesia	(O-28)	PK	Saint Pierre & Miquelon Is.	(NA-5)	FP8
Azores Is.	(E-14)	CT2	Iran	(A-21)	EP, EQ	Samoa (U.S.)	(O-32)	KS6
			Iraq	(A-21)	YI	Samoa, Western	(O-32)	5W1
Bahama Is.	(NA-8)	VP7	Ireland	(E-14)	EI	San Andres & Providencia	(NA-7)	HK0
Bahrein Is.	(A-21)	MP4B	Isle of Man	(E-14)	GD	San Marino	(E-15)	M1, 9A1
Baker Is.	(O-31)	KB6	Israel	(A-20)	4X4	Sao Tome & Principe Is.	(A-35)	CR5
Balearic Is.	(E-14)	EA6	Ivory Coast	(AF-35)	TU2	Sarawak	(O-28)	VS4
Barbados Is.	(NA-8)	VP6				Sardinia	(E-15)	IS
Basutoland	(AF-38)	ZS8	Jamaica	(NA-8)	6Y5	Saudi Arabia	(A-21)	HZ
Bechuanaland	(AF-38)	ZS9	Jan Mayen Is.	(E-40)	LA	Scotland	(E-14)	GM
Belgium	(E-14)	ON	Japan	(A-25)	JA	Senegal	(AF-35)	6W8
Bermuda Is.	(NA-5)	VP9	Jarvis Is.	(O-31)	KP6	Serrana Bank & Roncador Cay	(NA-7)	KS4B
Bhutan	(A-22)	AC5	Java	(O-28)	PK1, 2, 3	Seychelles Is.	(AF-39)	VQ9
Bolivia	(SA-10)	CP	Johnston Is.	(O-31)	KJ6	Sicily	(E-15)	IT
Borneo	(O-28)	PK5	Jordan	(A-20)	JY	Sierra Leone	(AF-35)	9L1
Brazil	(SA-11)	PY	Juan Fernandez Is.	(SA-12)	CE0Z	Sikkim	(A-22)	AC3
British Honduras	(NA-7)	VP1				Singapore	(A-28)	VS1
British Phoenix Is.	(O-31)	VR1	Kamran Is.	(A-21)	VS9K	Socotra Is.	(AF-37)	VS9
Brunei	(O-28)	VS5	Kenya	(AF-37)	5Z4	Solomon Is.	(O-28)	VR4
Bulgaria	(E-20)	LZ	Kerguelen Is.	(AF-39)	FB8	Somali Republic	(AF-37)	60
Burma	(A-26)	XZ	Kermadec Is.	(O-32)	ZL1	Somaliland, French	(AF-37)	FL8
Burundi	(AF-36)	9U5	Korea	(A-25)	HM, HL9	South Africa	(AF-38)	ZS
			Kuwait	(A-21)	9K2	South Georgia Is.	(SA-13)	VP8
						South Orkney Is.	(SA-13)	VP8
						South Sandwich Is.	(SA-13)	VP8
						South Shetland Is.	(SA-13)	CE9, VP8
						South-West Africa	(AF-38)	ZS3
						Soviet Union:		
						European Russian Socialist		
						Federated Soviet Republic	(E-16)	UA1, 3, 4, 6
						Asiatic Russian S.F.S.R.	(A-18, 19)	UA9, 0
						Ukraine	(E-16)	UB5
						White Russian S.S.R.	(E-16)	UC2
						Azerbaijan	(E-21)	UD6
						Georgia	(E-21)	UF6
						Armenia	(E-21)	UG6
						Turkmen	(A-17)	UH8
						Uzbek	(A-17)	UI8
						Tadzhik	(A-17)	UJ8
						Kazakh	(A-17)	UL7
						Kirghiz	(A-17)	UM8
						Karelo-Finnish Republic	(E-16)	UN1
						Moldavia	(E-16)	UO5
						Lithuania	(E-15)	UP
						Latvia	(E-15)	UQ
						Estonia	(E-15)	UR
						Spain	(E-14)	EA
						Spanish Sahara (Rio de Oro)	(A-33)	EA9
						Sudan	(AF-34)	ST
						Sumatra	(O-28)	PK4
						Surinam (Netherlands Guiana)	(SA-9)	PZ
						Svalbard Is.	(E-40)	LA
						Swan Is.	(NA-7)	KS4
						Swaziland	(AF-38)	ZS7
						Sweden	(E-14)	SL, SM
						Switzerland	(E-14)	HB
						Syria	(A-20)	YK
						Tanganyika	(AF-37)	5H3
						Tasmania	(O-30)	VK7
						Thailand	(A-26)	HS
						Tibet	(A-23)	AC4
						Timor Is. (Portuguese)	(O-28)	CR8
						Tinian Is.	(O-27)	KG6T
						Togo	(AF-35)	5V4
						Tokelau Is.	(O-31)	ZM7
						Tonga (Friendly) Is.	(O-32)	VR5
						Trieste	(E-15)	II
						Trindade & Martim Vaz Is.	(SA-11)	PY0
						Trinidad & Tobago Is.	(SA-9)	VP4
						Tristan de Cunha & Gough Is.	(AF-38)	ZD9
						Tromelin Is.	(AF-39)	FB8
						Trucial Oman	(A-21)	MP4T
						Tunisia	(AF-33)	3V8
						Turkey	(A-20)	TA, TC
						Turks & Caicos Is.	(NA-8)	VP5
						Uganda	(AF-37)	5X5
						United Nations, Geneva	(E-14)	4U1
						United States of America	(NA-3, 4, 5)	W, K
						Upper Volta	(AF-35)	XT2
						Uruguay	(SA-13)	CX
						Vatican City	(E-15)	HV
						Venezuela	(SA-9)	YV
						Vietnam	(A-26)	3W8
						Virgin Is.	(NA-8)	KV4
						Volcano Is.	(A-25)	KG6I
						Wake Is.	(O-31)	KW6
						Wales	(E-14)	GW
						Wallis & Futuna Is.	(O-32)	FW8
						Windward Is. (Br. West Indies)	(NA-8)	VP2
						Yemen	(A-21)	4WI
						Yugoslavia	(E-15)	YT, YU
						Zanzibar	(AF-37)	VQ1
Gabon	(AF-36)	TR8	Pakistan	(A-21, 22)	AP			
Galapagos Is.	(SA-10)	HC8	Palmyra Is.	(O-31)	KP6			
Gambia	(AF-35)	ZD3	Panama	(NA-7)	HP			
German Federal Rep, West	(E-14)	DJ, DL	Papua Territory	(O-28)	VK9			
German Democratic Rep, East	(E-14)	DM	Paraguay	(SA-11)	ZP			
Ghana	(AF-35)	9G1	Peru	(SA-10)	OA			
Gibraltar	(E-14)	ZB2	Philippines	(O-27)	DU			
Gilbert Is.	(O-31)	VR1	Phoenix Is.	(O-31)	KB6			
Goa	(A-22)	CR8	Pitcairn Is.	(O-32)	VR6			
Graham Coast (Graham Land)	(SA-13)	VP8	Poland	(E-15)	SP			
Greece	(E-20)	SV	Portugal	(E-14)	CT1			
Greenland	(NA-40)	OX	Prince Edward & Marion Is.	(AF-38)	ZS2			
Guadeloupe Is.	(NA-8)	FG7	Puerto Rico	(NA-8)	KP4			
Guantanamo Bay	(NA-8)	KG4						
Guatemala	(NA-7)	TG	Qatar	(A-21)	MP4Q			





### *QUICK-CHANGE ARTIST*

Flick the switch and you're on VHF. With Collins 62S-1 VHF Converter you can transmit and receive on 6 and 2 or HF without changing cables. Think how great it will be to escape the crowds on the lower bands. The 62S-1 gives you eight full megs of bandwidth. You'll be able to work people you've never been able to reach in the past. You'll be able to get more local QSO's. You'll have the cleanest VHF signal on the air. And you'll have both bands from one self-contained unit. When used with the KWM-2, you don't need an additional power supply. You can use the 62S-1 to cover 49.6 to 54.2 and 143.6 to 148.8 mc (crystals for amateur bands provided). Incidentally, Collins 62S-1 will convert most equipment operating in the 14.0 to 14.2 mc range. Visit your Collins distributor and ask him to demonstrate the 62S-1 VHF Converter. Then ask him about Collins S/Line trade-in value. You'll be pleasantly surprised to find out how little it costs to operate the finest.





GREAT CIRCLE BEARINGS IN THE UNITED STATES

ATLANTA, GA.	264	322	47	24	25	301	343	15	86	269	297	320	7	271	310	251	347	145	306	281	281	347	154	345	331	321	234	48	64	48	278	27	318	296	289	308	48	84	WILMINGTON, N. C.	
BIRMINGHAM, ALA.	82		326	50	31	40	304	356	26	84	268	299	328	17	270	312	246	5	125	314	287	281	10	142	355	338	0	219	52	67	53	278	37	333	298	290	309	53	83	WASHINGTON, D. C.
BISMARCK, N. D.	132	137		92	97	115	209	114	105	124	167	205	133	104	198	273	165	119	132	148	150	233	123	135	109	108	131	151	99	111	102	217	106	134	237	249	282	107	119	SAN FRANCISCO, CALIF.
BOSTON, MASS.	236	241	291		277	247	278	273	267	226	254	275	274	262	293	246	263	220	268	253	273	256	207	278	286	249	237	235	219	233	268	258	262	280	280	295	236	217	SALT LAKE CITY, UTAH	
BUFFALO, N. Y.	208	217	291	92		206	273	264	237	192	241	269	268	261	252	290	231	243	191	258	237	267	231	184	274	286	225	219	118	160	134	261	199	248	276	276	293	159	174	ST. LOUIS, MO.
CHARLESTON, W. VA.	208	223	307	61	24		287	309	359	174	251	282	293	345	260	300	238	293	180	279	251	274	270	174	316	311	245	223	66	108	71	269	31	275	286	282	301	80	143	PHILADELPHIA, PA.
CHEYENNE, WYO.	108	112	26	76	91			81	81	103	140	187	83	79	189	319	143	90	113	101	119	241	95	119	76	62	104	128	81	92	83	219	84	98	268	262	303	87	100	PHOENIX, ARIZONA
CHICAGO, ILL.	161	175	302	82	78	125	272		93	144	221	266	268	80	242	293	210	151	155	245	208	262	157	156	350	308	173	190	91	116	97	254	101	212	274	272	295	106	131	NORFOLK, VA.
CLEVELAND, OHIO	197	209	297	80	55	179	277	277		176	240	272	275	310	252	293	228	245	180	261	235	268	226	175	290	296	219	214	95	136	105	262	127	250	278	277	296	124	156	NEW YORK, N. Y.
COLUMBIA, S. C.	268	267	317	41	10	354	299	329	356		270	295	311	350	271	308	256	326	189	300	279	282	320	174	331	323	297	246	39	53	37	279	7	305	295	290	307	33	85	MINNEAPOLIS, MINN.
DALLAS, TEXAS	81	82	349	57	49	61	325	36	50	80		319	15	45	266	325	157	47	97	15	61	280	55	112	32	11	65	115	60	71	61	277	55	40	308	291	315	63	80	MILWAUKEE, WIS.
DENVER, COLORADO	103	107	22	73	72	87	6	75	77	99	134		74	74	189	325	138	84	109	91	112	246	90	116	70	55	98	124	78	88	80	224	80	91	283	267	308	83	96	LOUISVILLE, KY.
DES MOINES, IOWA	134	144	318	80	78	105	271	84	87	123	197	262		81	231	297	187	105	135	197	171	257	116	141	69	5	133	165	87	104	91	247	92	137	273	270	296	97	115	LOS ANGELES, CALIF.
DETROIT, MICH.	188	200	295	86	79	164	273	263	129	168	233	268	268		248	291	222	224	174	254	227	265	208	171	282	292	206	207	100	133	109	258	128	238	275	274	294	124	151	LITTLE ROCK, ARK.
EL PASO, TEXAS	77	78	14	58	54	64	8	50	56	76	79	8	42	53		345	98	57	86	48	71	285	62	97	46	33	68	92	61	69	62	290	59	57	335	298	327	64	75	KANSAS CITY, MO.
HELENA, MONTANA	112	116	85	84	88	100	133	97	93	108	134	141	105	92	162		136	101	115	115	122	203	105	119	94	91	111	127	89	98	92	180	94	109	179	224	283	95	104	JACKSONVILLE, FLA.
HOUSTON, TEXAS	64	60	348	50	40	49	329	25	39	67	338	325	6	34	285	327		34	84	3	26	288	40	103	22	5	46	86	52	60	53	289	45	24	314	297	319	5	68	INDIANAPOLIS, IND.
INDIANAPOLIS, IND.	166	185	308	72	58	110	281	332	62	143	234	276	290	41	250	298	220		157	267	226	267	168	158	338	316	188	199	80	107	85	261	80	251	281	277	298	94	127	MILWAUKEE, WIS.
JACKSONVILLE, FLA.	327	309	324	33	9	1	308	339	0	8	286	304	323	355	282	314	273	340		314	300	288	338	163	341	332	326	271	29	34	28	287	8	323	303	295	312	23	39	MINNEAPOLIS, MINN.
KANSAS CITY, MO.	120	129	332	72	67	90	288	60	73	111	196	278	15	66	236	306	184	82	126		157	262	95	134	50	9	113	157	78	93	81	253	79	97	282	275	302	85	105	NASHVILLE, TENN.
LITTLE ROCK, ARK.	97	104	335	59	48	65	307	26	48	92	243	300	352	41	260	315	208	43	114	338		276	55	128	21	356	71	158	62	76	64	271	56	22	297	286	309	67	89	NEW ORLEANS, LA.
LOS ANGELES, CALIF.	81	82	41	62	61	70	52	62	65	79	88	57	60	62	100	19	96	67	87	67	81		70	94	59	52	76	92	65	71	66	95	67	69	35	319	348	68	78	LOS ANGELES, CALIF.
LOUISVILLE, KY.	166	190	313	66	47	87	287	339	43	137	242	282	301	26	256	302	227	348	156	280	239	271		158	342	322	202	205	71	98	75	266	63	278	285	281	301	82	120	MIAMI, FLORIDA
MIAMI, FLORIDA	337	326	329	22	3	355	313	342	356	355	302	310	329	353	291	318	290	342	345	321	315	293	341		342	335	334	298	18	16	15	293	1	330	308	299	315	11	13	MILWAUKEE, WIS.
MILWAUKEE, WIS.	162	175	297	87	88	132	267	170	107	147	218	261	253	99	239	290	207	157	156	235	204	259	160	157		298	172	188	98	121	103	251	111	203	271	270	293	113	135	MINNEAPOLIS, MINN.
MINNEAPOLIS, MINN.	145	154	291	91	96	123	248	125	108	135	193	242	184	105	227	283	186	132	144	189	175	248	137	146	114		148	169	99	116	104	237	110	159	259	261	287	111	127	NASHVILLE, TENN.
NASHVILLE, TENN.	140	180	320	59	40	61	295	354	36	114	251	290	318	24	261	307	231	8	142	298	254	275	22	150	353	333		205	63	83	65	271	50	313	291	285	305	68	103	NEW ORLEANS, LA.
NEW ORLEANS, LA.	50	37	337	46	32	38	318	9	28	60	299	313	347	22	283	321	270	17	86	339	339	288	22	114	7	351	23		46	56	47	287	35	359	308	296	315	47	64	NEW YORK, N. Y.
NEW YORK, N. Y.	233	240	296	54	303	251	281	281	280	223	255	278	280	286	262	294	244	269	213	271	253	274	259	202	287	293	251	237		205	229	269	269	266	283	282	297	235	208	NORFOLK, VA.
NORFOLK, VA.	249	253	306	35	342	291	290	303	319	236	264	286	295	318	268	301	253	294	217	285	267	279	284	198	308	307	269	244	25	16	274	322	284	289	286	302	343	208	PHILADELPHIA, PA.	
PHILADELPHIA, PA.	233	240	298	52	317	255	283	285	289	221	255	279	283	294	263	296	246	273	212	273	255	275	263	199	292	296	252	235	49	197		270	279	269	284	282	298	235	203	PHOENIX, ARIZONA
PHOENIX, ARIZONA	80	83	29	61	59	69	35	58	62	79	89	40	55	59	108	0	100	64	89	62	80	277	70	97	55	45	74	93	64	72	66		64	66	1	300	334	68	79	PITTSBURGH, PA.
PITTSBURGH, PA.	210	221	300	72	18	213	280	286	308	188	246	276	281	310	257	295	235	264	189	268	244	271	246	181	296	299	234	222	85	140	96	265		261	281	279	297	123	165	ST. LOUIS, MO.
ST. LOUIS, MO.	134	150	320	70	60	90	287	30	63	119	224	280	319	53	248	303	207	68	137	280	204	267	94	143	20	342	130	179	75	95	79	260	74		284	278	301	84	110	SALT LAKE CITY, UTAH
SALT LAKE CITY, UTAH	99	101	50	73	74	86	83	79	78	95	118	98	80	76	152	359	123	84	103	91	104	220	88	109	75	67	95	114	78	86	80	181	80	90		254	315	83	92	SAN FRANCISCO, CALIF.
SAN FRANCISCO, CALIF.	86	86	54	66	67	75	70	70	83	96	75	70	68	109	39	101	73	90	77	88	136	77	96	67	62	81	97	69	76	71	114	71	77	66		1	73	81	SEATTLE, WASHINGTON	
SEATTLE, WASHINGTON	103	105	87	81	84	94	111	92	89	100	118	116	97	88	136	96	120	95	105	103	109	165	97	109	90	88	102	114	85	92	87	147	89	100	128	181		90	97	WASHINGTON, D. C.
WASHINGTON, D. C.	233	240	302	52	342	263	285	293	307	215	256	281	287	308	263	298	245	280	205	277	257	275	268	192	300	302	254	235	53	163	53	270	305	273	285	283	300		189	WILMINGTON, N. C.
WILMINGTON, N. C.	267	267	313	32	355	325	297	318	339	267	270	293	306	335	274																									



# ARRL Phonetic Alphabet

- A** ADAM
- B** BAKER
- C** CHARLIE
- D** DAVID
- E** EDWARD
- F** FRANK
- G** GEORGE
- H** HENRY
- I** IDA
- J** JOHN
- K** KING
- L** LEWIS
- M** MARY
- N** NANCY
- O** OTTO
- P** PETER
- Q** QUEEN
- R** ROBERT
- S** SUSAN
- T** THOMAS
- U** UNION
- V** VICTOR
- W** WILLIAM
- X** X-RAY
- Y** YOUNG
- Z** ZEBRA

## ON GOOD PHONE OPERATING

1. *Listen much . . . with care.* Avoid distractions in your operating room. Tune the band well after each call.
2. *Time your calls; monitor your own frequency.* Call only when a station is free.
3. *Make short calls, with breaks to listen.* Speak clearly, at a steady, modest rate. Three short calls are better than one long one.
4. *Use push-to-talk technique . . . speak near the mike.* Watch the modulation indicator. Keep local background noise at a minimum.
5. *Make notes.* Avoid missing points for comment. Jot down topics to avoid repeats.
6. *Talk in connected thoughts and phrases.* Notes will help avoid mixing up subjects. Push-to-talk technique will keep brother amateurs from calling you a monologist.
7. *Speak naturally.* QSOs need not be cut and dried. Make them interesting. Avoid exhibitionism. Use proper operating form to promote efficiency in communication and add respect and prestige for your station.

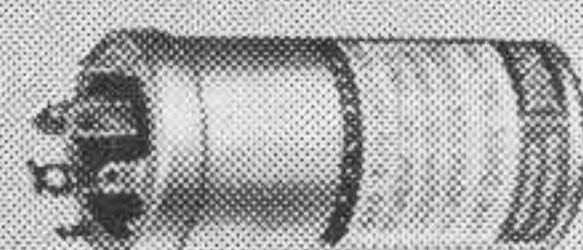
Use of this standard list is recommended by ARRL. Haphazard selection of words often results in confusion. A degree of uniformity in use of phonetic words reflects favorably on your individual operating, and on the whole amateur service.

ARRL Communications Department.

## Build **RELIABILITY** into your equipment with **SPRAGUE**

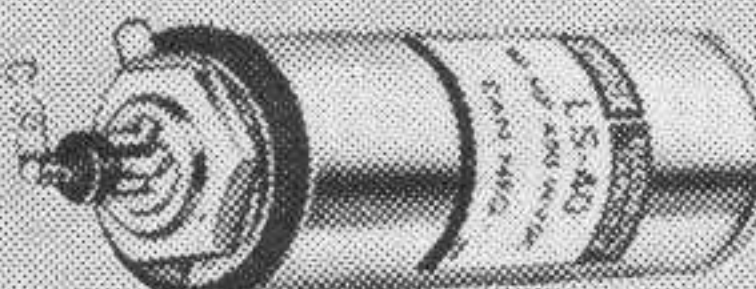
### 'LYTIC CAPACITORS

**Twist-Lok® Electrolytics**



Hermetically sealed in aluminum cases. Withstand high temperatures (85° C), high surge voltages, high ripple currents.

**Screwbase Electrolytics**



Aluminum cases. Will withstand high a-c ripple. Available with lugs or insulated wire leads. Common or separate negative terminals.



**Atom® Electrolytics**

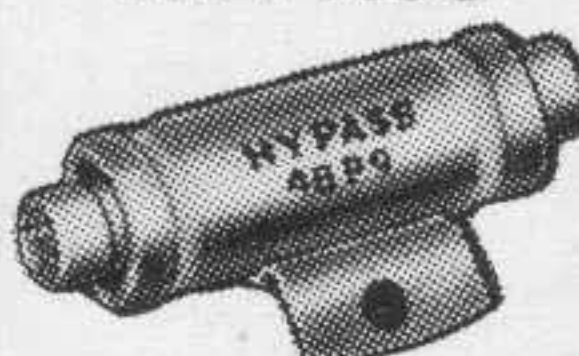
Tiny, dependable single or multiple section units. Low leakage, long shelf life. Metal cases with outer Kraft tubes.



**Littl-Lytic® Electrolytics**

Ultra-small, excellent for transistorized circuitry. All-welded construction—no pressure joints to cause "opens". Low leakage, extremely long shelf life.

### HYPASS® CAPACITORS



Exclusive 3-terminal feed-thru units which effectively by-pass vhf currents. Suppress TVI from transmitters, diathermy, line-conducted radiation, etc.

### OIL CAPACITORS



For transmitter power supplies and other high voltage applications. Hermetically sealed in rugged metal cases. Oil-impregnated, oil-filled. High insulation resistance.

### SK-1 SUPPRESSIKIT®



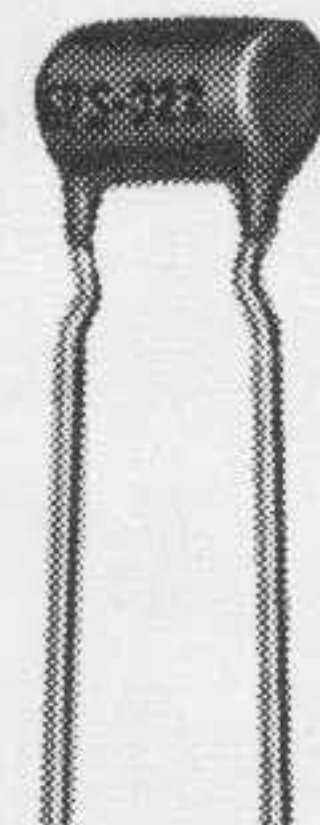
Contains everything needed for effective mobile radio noise suppression of R-F interference up to 400 mc. For autos with 6 or 12 volt generators.

### DIFILM® CAPACITORS



#### Black Beauty® Molded Tubulars

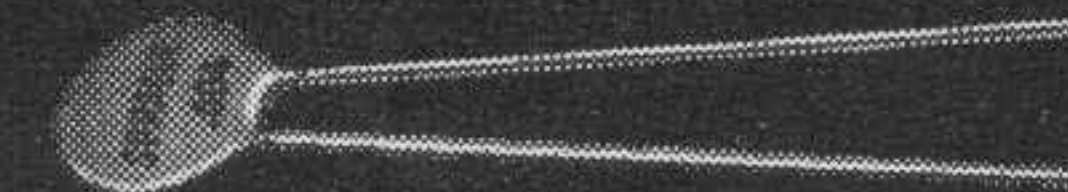
Dual dielectric (polyester film and paper) combines best features of both. Solid impregnant, nothing to leak or drip. Molded phenolic case. Withstand high temperatures, high humidity.



#### Orange Drop® Dipped Tubulars

Dual dielectric (polyester film and paper), with solid impregnant. Double-dipped in epoxy resin. Radial leads, ideal for printed wiring boards.

### CERAMIC CAPACITORS



#### Cera-Mite® Disc Types

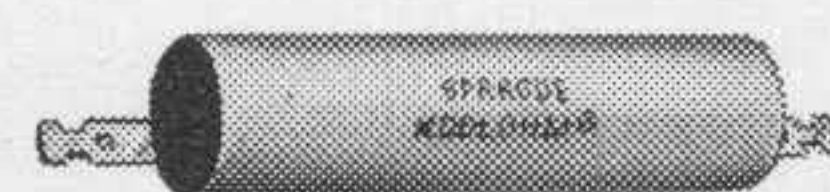
Extremely wide range of capacitance values and voltage ratings. Available in general-application, high-K, temperature-stable, and temperature-compensating types.



#### Buttonhead Types

Flat disc capacitor element sealed in top of hex head. Screw stud for easy mounting. Low self-inductance, high self-resonant frequency. Ideal for by-pass or feed-thru applications.

### WIREWOUND RESISTORS



#### Koolohm® Ceramic-shell Types

Insulated-shell power resistors wound with ceramic-insulated wire. Completely moisture-proof. Ratings to 120 watts in inductive and non-inductive construction.



#### Blue Jacket® Vitreous Enamel Types

Tough glazed coating guards against humidity and failure through electrolysis. Broad range of resistance values in ratings from 2 to 10 watts.

For complete data on these and other Sprague components, get Catalog C-615 from your Sprague Distributor, or write Sprague Products Co., 95 Marshall Street, North Adams, Mass.

**SPRAGUE®**  
THE MARK OF RELIABILITY



WORLD TIME CONVERSION CHART IN HOURS

Greenwich Meridian Time. London, Eng- land.	Central Europe. Ber- lin, Geneva, Stock- holm, Vienna.	Eastern Europe. Ath- ens, Cape Town.	Arabia, Armenia, Madagas- car.	Mauritius, Persia, Reunion Island.	Central Russia, Bom- bay, India.	Calcutta, Novosi- birsk, Russia, Tibet.	French Indo China. Siam, Sumatra.	Philippine Islands. Perth, Australia.	Central Australia. Tokyo, Japan.	Eastern Australia. Melbourne, Sydney.	New Caledonia.	Fiji Islands. Line.	Nome, Alaska. Samoa Islands.	Hawaiian Islands.	Eastern Alaska. Dawson, Juneau.	Pacific Standard Time. Los Angeles, Seattle.	Mountain Standard Time. Calgary, Denver, Phoenix.	Central Standard Time. Chicago, Costa Rica.	Eastern Standard Time. Montreal, New York, Peru.	Atlantic Standard Time. Argentina, Nova Scotia.	Greenland. Rio de Janeiro, Brazil.	Azores.	Iceland. Canary Islands.
0000	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM
0100	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night
0200	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM
0300	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM
0400	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM
0500	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM
0600	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM
0700	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM
0800	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM
0900	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM
1000	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM
1100	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM
1200	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM
1300	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon
1400	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM
1500	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM
1600	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM
1700	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM
1800	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM
1900	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM
2000	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM
2100	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM
2200	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM
2300	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM

With this chart you can convert standard time in any time zone to GMT or tell what time it is in other parts of the world. To correctly use this chart visualize each horizontal line as a complete circle. From your time zone tracing horizontally to the right (Counter Clockwise) it will be tomorrow when you pass midnight and yesterday when you pass the international date line. To the left (Clockwise) it will be yesterday when you pass midnight and tomorrow when you pass the international date line. There is no change in date when you pass both midnight and the international date line going in one direction. For instance at 8 PM in New York Eastern Standard Time it is 2 AM tomorrow in Berlin, Germany and 11 AM tomorrow in Sydney, Australia. Always trace in the shortest direction from your time zone to find what time it is in any other zone. Copyright 1938 Radio Amateur Call Book, Inc., Chicago, USA.



# 73?

# 10AR?

# 6UP?

# ATV?

73 Magazine is the fastest growing ham magazine in the world. Just over three years old, 73 features technical and construction articles instead of the usual mass of operating news. It also features editorials by W2NSD which are shaking the Establishment to its core. A subscription to 73 is only \$4 per year (world wide), two years for \$7, three for \$10, life for \$50.

The INSTITUTE of AMATEUR RADIO, Inc., a non-profit club second only in size to the ARRL, is now working to set up the best possible climate for the next Geneva frequency allocation conference (probably 1965). The Institute program: An information office in Washington to see that all officials get news of amateur public service and to answer any questions about amateur radio that may arise. To help amateurs fighting legal battles that could set a precedent against amateur radio. To give all probable delegates to the next Geneva conference a steady supply of info on the value and service of amateur radio. Dues are \$10 a year which is little enough to invest in the survival of

our hobby. If you have been following events you know that we are going into the most crucial conference ever held and that we most desperately need the complete backing of our own government as well as foreign governments. To get this backing we have to work hard right now to overcome the bad publicity of TVI and put across our story of public service. This cannot wait until next year.

6Up Magazine is the only VHF magazine now in publication. Edited by Jim Kyle K5JKX, this magazine is published monthly and provides the latest operating news, skeds, predictions, technical articles, and all other info of interest to VHF and UHF operators. Yearly subscription is \$2.

ATV Bulletin is published every other month for all amateurs interested in amateur television. Latest circuits, surplus conversions, and a list of active stations. \$2 a year.

Radio Bookshop; Books of virtually all publishers are available from the

Radio Bookshop division of 73. All published books are carefully screened and those of greatest interest to amateurs listed.

73 Parts Kits; Kits of parts are available from 73 for most of the simpler construction projects that appear in the magazine.

73, the Institute of Amateur Radio, the Radio Bookshop, 6-Up Magazine, ATV Bulletin, 73 Parts Kits, and all the other projects are being run by a small group of dedicated amateurs (W1AER, W1AIM, K1CJD, WA1AWG, K9YOE/1, K9ZTE/1, WA4HWH/1, W5WNF/1, K1FYP, W2NSD/1, etc.) up in the mountains of New Hampshire in the interests of low overhead. We really need your help as a member of the Institute and a subscriber to 73.... How about it?

73  
Wayne  
W2NSD/1

73 MAGAZINE, PETERBOROUGH, NEW HAMPSHIRE

## Check Your QTH In This Issue!

*Do we have the latest information on your QTH in this issue? Have you moved and overlooked sending us a notice?*

**Help us keep your CALLBOOK up-to-date by notifying us of any change to be made in your listing. Make it official on your QSL card.**

**Please give us your old address as well as your new address to facilitate the change.**

*Mail to:*

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4844 Fullerton Avenue  
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Reservations and copy instructions must reach our office on the fifteenth of January, April, July and October for the March, June, September and December issues of the CALLBOOK respectively.

**RADIO AMATEUR CALLBOOK**  
4844 W. Fullerton Avenue Chicago, Illinois 60639



GREAT CIRCLE BEARINGS FROM THE UNITED STATES TO VARIOUS WORLD METROPOLITAN AREAS

ATLANTA, GA.	43	325	153	242	160	26	48	45	158	51	114	141	38	198	170	30	280	102	160	170	45	58	329	227	156	32	34	47	42	170	139	51	179	168	336	346	33	254	324	TOKYO, JAPAN
BIRMINGHAM, ALA.	42	325	151	241	155	23	47	44	156	50	113	137	37	191	158	29	279	101	157	167	44	57	327	221	154	36	33	47	42	165	137	50	173	166	334	342	32	253	323	SYDNEY, AUSTRALIA
BISMARCK, N. D.	42	315	141	240	143	7	45	43	146	40	97	131	35	162	142	27	261	81	146	154	45	56	317	177	145	84	33	46	39	151	129	46	153	155	325	328	30	256	314	STOCKHOLM, SWEDEN
BOSTON, MASS.	51	321	167	253	186	36	56	53	169	60	117	172	45	217	210	36	284	105	177	187	53	68	346	235	168	331	40	56	50	191	153	59	205	181	349	7	39	270	335	
BUFFALO, N. Y.	49	320	160	250	172	29	53	51	163	55	112	159	42	203	189	34	279	99	168	178	51	65	338	222	161	54	38	53	47	179	146	56	189	173	342	356	37	266	329	
CHARLESTON, W. VA.	46	322	156	246	167	28	50	47	160	53	113	151	40	201	183	32	279	101	164	174	48	61	334	224	159	37	36	50	45	175	143	53	185	170	339	351	35	259	327	
CHEYENNE, WYO.	38	322	138	236	135	3	41	40	143	37	100	122	32	151	127	24	263	84	141	148	41	52	312	166	142	69	30	42	36	143	126	42	144	152	322	321	27	250	312	
CHICAGO, ILL.	45	320	152	245	158	21	49	47	156	49	108	144	39	186	165	31	274	95	158	167	48	60	328	207	154	66	36	50	44	167	138	51	173	166	335	343	34	260	323	
CLEVELAND, OHIO	47	320	157	247	167	27	52	49	161	53	111	153	41	198	182	33	278	99	165	174	50	63	334	219	159	53	37	52	46	175	143	54	184	171	340	352	36	263	327	
COLUMBIA, S. C.	44	324	156	243	166	29	49	46	161	53	115	148	39	206	186	31	281	103	164	175	46	59	333	232	159	24	35	48	44	175	142	52	187	171	339	352	34	255	327	
DALLAS, TEXAS	39	326	142	237	138	12	43	41	148	44	110	122	34	161	123	26	274	97	146	154	42	53	317	189	147	48	31	43	38	149	130	45	150	157	326	326	29	249	317	
DENVER, COLORADO	38	323	137	235	133	2	41	39	143	37	101	120	32	149	124	24	264	85	141	147	41	52	312	164	142	66	29	42	35	142	125	42	142	152	321	320	27	249	312	
DES MOINES, IOWA	43	320	146	242	149	15	47	44	151	45	105	135	37	173	149	28	270	90	152	160	46	58	323	194	150	68	34	47	41	158	134	48	162	161	330	335	32	256	319	
DETROIT, MICH.	47	320	156	247	166	25	51	49	160	52	110	151	41	195	178	32	277	97	163	173	50	63	333	216	159	62	37	52	46	173	142	54	182	169	339	350	35	263	326	
EL PASO, TEXAS	36	329	135	233	125	1	39	37	142	37	108	111	30	136	106	22	270	94	137	142	38	49	308	150	140	52	27	40	34	135	124	41	131	149	319	313	25	245	312	
HELENA, MONTANA	36	318	133	233	130	355	39	38	138	31	89	119	30	144	124	22	252	71	136	142	39	49	308	154	137	78	28	40	33	138	121	39	138	147	317	316	25	249	307	
HOUSTON, TEXAS	39	328	143	237	137	15	43	41	149	45	113	120	34	162	116	26	277	100	147	154	41	53	317	199	147	41	30	43	38	149	130	46	150	158	327	326	29	247	318	
INDIANAPOLIS, IND.	45	321	153	244	160	23	49	47	157	50	110	144	39	190	168	31	276	97	160	169	47	60	329	212	155	54	35	49	43	168	139	52	176	167	336	345	34	259	324	
JACKSONVILLE, FLA.	42	326	155	242	163	30	48	44	160	53	117	142	37	209	185	30	283	105	163	173	44	57	331	239	158	20	33	47	42	174	141	51	187	170	338	350	33	251	326	
KANSAS CITY, MO.	42	322	145	240	146	14	45	43	151	45	107	132	36	171	143	28	271	93	151	159	44	56	321	193	149	61	33	46	40	156	133	47	159	160	329	333	31	254	319	
LITTLE ROCK, ARK.	41	325	146	240	147	17	45	43	152	47	111	130	36	175	141	28	275	98	152	160	43	56	322	203	150	47	32	45	40	157	134	48	161	161	330	334	31	252	320	
LOS ANGELES, CALIF.	31	333	127	228	116	347	34	33	135	28	102	104	26	121	100	18	260	84	128	132	34	44	300	126	134	58	24	35	28	124	117	34	119	141	312	303	21	241	306	
LOUISVILLE, KY.	44	322	153	244	160	23	49	46	157	50	111	144	39	191	168	30	277	98	160	169	47	60	329	215	156	47	35	49	43	168	139	51	176	167	336	345	33	257	324	
MIAMI, FLORIDA	41	328	155	240	163	33	47	43	160	54	118	138	37	223	217	30	285	108	163	175	43	56	331	254	158	13	33	46	42	176	140	50	194	171	339	351	32	247	327	
MILWAUKEE, WIS.	45	319	152	245	158	20	50	47	156	49	107	145	39	185	165	31	273	94	158	167	48	61	328	205	154	72	36	50	44	166	138	52	173	165	335	343	34	261	323	
MINNEAPOLIS, MINN.	44	317	147	243	152	15	48	46	152	46	103	139	38	175	154	29	270	90	153	161	47	59	324	193	150	81	35	49	42	160	134	49	164	161	331	337	33	259	319	
NASHVILLE, TENN.	43	323	151	242	157	23	48	45	156	50	112	140	38	190	162	30	277	99	158	167	46	58	328	216	155	43	34	48	42	166	138	50	174	166	335	343	33	255	324	
NEW ORLEANS, LA.	40	327	147	239	146	21	45	42	153	48	114	127	35	182	133	28	279	102	152	161	43	55	322	220	151	35	32	45	40	158	135	48	163	162	331	334	30	249	321	
NEW YORK, N. Y.	49	321	164	251	180	34	54	51	167	58	116	166	43	214	204	35	283	104	173	184	51	66	343	233	165	4	39	54	48	187	150	57	199	177	346	3	38	266	333	
NORFOLK, VA.	46	323	161	247	176	33	51	48	165	56	116	160	41	213	203	33	283	104	170	181	48	62	339	235	163	12	36	51	46	184	147	55	197	175	344	0	36	260	331	
PHILADELPHIA, PA.	48	322	163	249	178	33	53	50	166	57	115	164	42	212	202	34	282	103	172	182	50	65	341	232	164	11	38	53	48	185	149	56	197	176	345	2	37	264	332	
PHOENIX, ARIZONA	34	330	131	231	121	354	37	35	138	33	105	108	28	129	104	20	265	89	133	138	36	47	304	137	137	56	26	38	31	130	121	38	126	146	316	308	23	243	309	
PITTSBURGH, PA.	47	321	158	247	170	29	52	49	162	54	113	155	41	203	187	33	279	100	167	176	49	63	336	224	160	41	37	52	46	178	145	55	188	172	341	354	36	262	329	
ST. LOUIS, MO.	43	322	149	242	153	19	47	45	154	48	109	137	37	181	156	29	274	96	155	164	46	58	325	204	152	55	34	47	42	162	136	49	167	163	332	339	32	256	321	
SALT LAKE CITY, UTAH	35	325	132	232	127	355	38	36	139	32	96	114	29	138	116	21	258	79	135	141	38	48	307	149	136	67	27	39	32	135	121	38	134	146	317	313	24	247	308	
SAN FRANCISCO, CALIF.	30	333	125	226	115	343	32	31	132	24	95	104	24	121	101	16	252	74	126	130	33	42	298	126	131	62	22	33	26	123	115	32	119	139	310	301	19	240	303	
SEATTLE, WASHINGTON	31	321	125	227	120	345	33	32	131	23	79	110	25	131	113	17	240	58	128	133	34	43	300	138	130	75	24	35	27	128	113	32	127	139	309	306	20	243	301	
WASHINGTON, D. C.	47	322	161	248	175	32	52	49	164	56	115	160	41	210	198	33	282	103	170	180	49	63	339	231	163	20	37	52	47	182	147	55	194	174	343	359	36	262	331	
WILMINGTON, N. C.	45	324	159	245	172	32	50	47	163	55	116	154	39	213	200	32	283	105	168	179	47	60	337	237	161	15	35	49	45	181	145	53	194	173	342	357	34	256	329	

The above table shows the great circle bearing in degrees, of various metropolitan areas in the United States in relationship to large cities throughout the world. This table should be used from left to right only. To find the great circle bearing between any two of the cities shown, start at the left and follow the horizontal line to the right until you come to the column directly under the name of the city that you desire



## SPECIAL ARRL QN SIGNALS FOR NET USE

QNA*	Answer in prearranged order.
QNB*	Act as relay Between . . . . . and . . . . .
QNC	All net stations Copy. I have a message for all net stations.
QND*	Net is Directed (controlled by net control station).
QNE*	Entire net please stand by.
QNF	Net is Free (not controlled).
QNG	Take over as net control station.
QNH	Your net frequency is High.
QNI	Net stations report In.* I am reporting into the net.
QNJ	Can you copy me? Can you copy . . . . . ?
QNK*	Transmit messages for . . . . . to . . . . .
QNL	Your net frequency is Low.
QNM*	You are QRMing the net. Please stand by.
QNN	Net control station is . . . . . * What station has net control?
QNO	Station is leaving the net.
QNP	Unable to copy you (or . . . . .).
QNQ*	Move frequency to . . . and wait for . . . to finish handling traffic. Then send him traffic for . . . . .
QNR*	Answer . . . and Relay (or Receive) traffic.
QNS	Following Stations are in the net.* (Follow with list). Request list of stations in the net.
QNT	Leaving net Temporarily (or for . . . minutes).
QNU*	The net has traffic for YOU. Stand by.
QNV*	Establish contact with . . . . . on this frequency. If successful, move to . . . and send him traffic for . . .
QNW	How do I route messages for . . . . . ?
QNX	You are excused from the net.* Request to be excused from the net.
QNY*	Shift to another frequency (or to . . . kc.) to clear traffic with . . . . .
QNZ	Zero beat your signal with mine.

\*For use only by Net Control Station

### Notes on the Use of QN Signals

- The QN signals listed above are special ARRL signals for use in amateur c.w. nets only. Other meanings that may be used in other services do not apply.
- Some QN signals are for use by net control stations only; these are marked with an asterisk (\*). Others have slightly different meanings when used by the NCS and net stations; in this case, the meaning when used by the NCS is marked with an asterisk (\*).
- Some QN signals have two meanings, the difference depending on how or by whom used. Examples: (a) QNC, when used as a preface to transmission of a message, carries its first meaning; when used by a station reporting into the net (e.g., W9NCS DE W9NET QNI QNC), it carries its second meaning. (b) QNI, when used by the NCS, is a request for stations to report in; when used by a net station, it means that this station is reporting in. (c) QNJ, when used alone, carries its first meaning; when followed by a call, it carries the second meaning.
- QN signals are never followed by a question mark, even though the meaning may be interrogatory.
- Do not use QN signals on phone nets. Say it with words.
- Use QN signals in nets only. They are not for use in casual amateur conversation.
- Make frequent use of standard international "Q" signals in traffic nets, for meanings not covered by QN signals. Examples: QRU, QRV, QSV, QTA, QTB, QTX, etc.

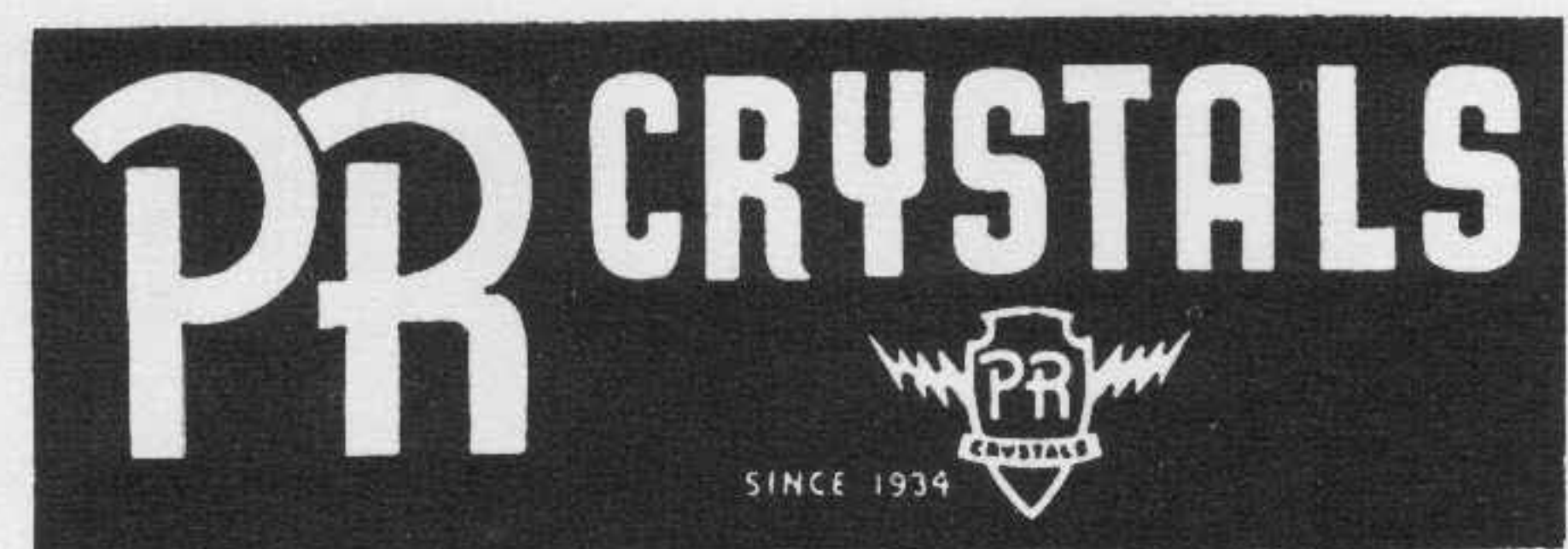
ARRL Communications Department

## "Q" SIGNALS

Given below are a number of Q signals whose meanings most often need to be expressed with brevity and clearness in amateur work. (Q abbreviations take the form of questions only when each is sent followed by a question mark.)

QAV	Are you calling me? I am calling . . . . .
QBT	Am I missing dots? You are missing dots.
QCM	Is there a defect in my transmission? There seems to be a defect in your transmission.
QDH	What is causing the present interference? The present interference is being caused by . . . . .
QIF	What frequency is . . . . . (station) using? . . . . . (station) is using . . . . . (frequency).
QRG	Will you tell me my exact frequency in kilocycles? Your frequency is . . . . . kc.
QRH	Does my frequency vary? Your frequency varies.
QRI	How is the tone of my transmission? The tone of your transmission is . . . . . (1.good; 2.variable; 3.bad).
QRJ	Are you receiving me badly? Are my signals weak? I cannot receive you. Your signals are too weak.
QRK	What is the readability of my signals (1 to 5)? The readability of your signals is . . . . . (1 to 5).
QRL	Are you busy? I am busy or busy with (. . . . .).
QRM	Are you being interfered with? I am interfered with.
QRN	Are you troubled by atmospherics? I am being troubled by atmospherics.
QRO	Must I increase power? Increase power.
QRP	Must I decrease power? Decrease power.
QRQ	Shall I send faster? Send faster (. . . words per min.).
QRS	Shall I send more slowly? Send more slowly (. . . w.p.m.).
QRT	Shall I stop sending? Stop sending.
QRU	Have you anything for me? I have nothing for you.
QRV	Are you ready? I am ready.
QRW	Shall I tell . . . . . that you are calling him? Please tell . . . . . that I am calling him.
QRX	When will you call again? I will call you again at . . . . . hours (on . . . kc.).
QRZ	Who is calling me? You are being called by . . . . .
QSA	What is the strength of my signals (1 to 5)? The strength of your signals is . . . . . (1 to 5).
QSB	Does the strength of my signals vary? The strength of your signals varies.
QSD	Is my keying correct? Are my signals distinct? Your keying is incorrect; your signals are bad.
QSG	Shall I send . . . telegrams (or one) at a time? Send . . . telegrams at a time.
QSK	Can you hear me between your signals? I can hear you between my signals.
QSL	Can you give me acknowledgment of receipt? I give you acknowledgment of receipt.
QSM	Shall I repeat the last telegram I sent you? Repeat the last telegram you sent me.
QSO	Can you communicate with . . . direct (or through . . . )? I can communicate with . . . direct (or through . . . ).
QSP	Will you relay to . . . . . ? I will relay to . . . . .
QSV	Shall I send a series of VVV . . . . . ? Send a series of VVV.
QSW	Will you send on . . . kcs.? etc. I will send on . . . kcs., etc.
QSX	Will you listen for . . . . . (call sign) on . . . kcs? I am listening for . . . . . on . . . kcs.
QSY	Shall I change . . . kcs. without changing the type of wave? Change to . . . kc. without changing type of wave.
QSZ	Shall I send each word or group twice? Send each word or group twice.
QTA	Shall I cancel nr . . . as if it had not been sent? Cancel nr . . . as if it had not been sent.
QTB	Do you agree with my number of words? I do not agree with your number of words; I will repeat the first letter of each word and the first figure of each number.
QTC	How many telegrams have you to send? I have . . . telegrams for you or for . . . . .
QTH	What is your position (location)? My location is . . . . . (by any indication).
QTR	What is the exact time? The time is . . . . .
QTX	Will you keep your station open for further communication? I will keep my station open for further communication.
CQ	General call to any station.  Special abbreviations adopted by ARRL:
QST	General call preceding a message addressed to all amateurs and ARRL Members. This is in effect "CQ ARRL".
QRRR	Official ARRL "Iand SOS". A distress call for emergency use only by station in an emergency situation. Indicate your call, location, situation and other data, even if no QSO results.

ARRL Communications Department



### AMATEUR

#### Fundamental, PR Type Z-2

FREQUENCY RANGES IN KCS.: 1,750 to 2,000 (160M); 3,500 to 4,000 (80M); 7,000 to 7,425 (40M); 8,000 to 8,222 (2M); 8,334 to 9,000 (6M).

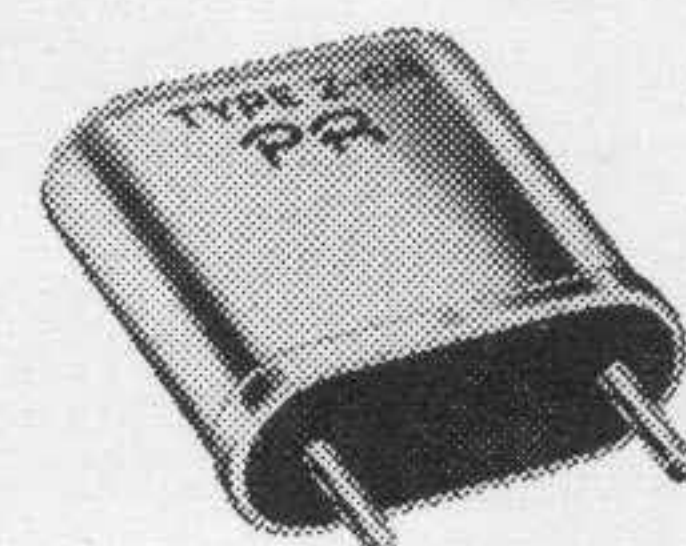
Rugged. Low drift, fundamental oscillators. High activity and power output. Stands up under maximum crystal currents. Stable, long-lasting; 1,750 to 2,000 Kc.,  $\pm 250$  cycles; others  $\pm 500$  cycles.

\$2.95 Net

(All Z-2 Crystals calibrated with a load of 32 mmfd.)

#### Third Overtone, PR Type Z-9A

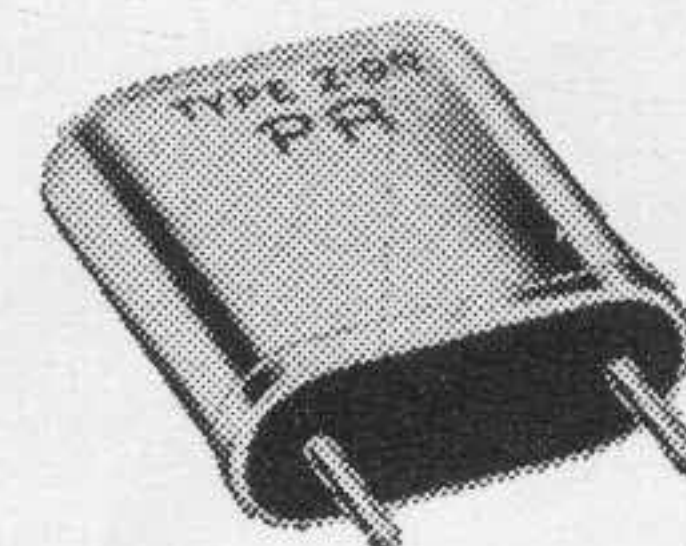
Hermetically sealed; calibrated 24,000 to 24,666 and 25,000 to 27,000 Kc.,  $\pm 3$  Kc.; also 28,000 to 29,700 Kc.,  $\pm 5$  Kc.; .050" pins. \$3.95 Net



#### 6 Meters, PR Type Z-9A

Fifth overtone; for operating directly in 6-meter band; hermetically sealed; calibrated 50 to 54 Mc.,  $\pm 15$  Kc.; .050" pins \$4.95 Net

### SPECIAL TYPES



#### Z-9R

Type Z-9R Crystals have .486" pin spacing; .050" pin diameter; .758" height above pins; width .720" and depth .309".  
Miniature Type Z-13 Crystals have .192" pin spacing; .040" pin diameter; .530" height above pins; width .402" and thickness .150".  
Miniature Type Z-13P Crystals are same as Z-13 except for having .017 wire leads instead of pins.

#### Z-13 (Miniature)

### CITIZENS BAND, TRANSMITTER

Supplied in all 23 assigned frequencies. Calibrated .005%. Be sure to specify channel desired, make and model of equipment.

Type Z-9R—Transmitter . . . . . \$2.95 Net  
Type Z-13—Transmitter (Miniature) . . . . . 2.95 Net  
Type Z-13P—Transmitter (Miniature) . . . . . 2.95 Net

### CITIZENS BAND, RECEIVER

Calibrated .005%. Specifications same as for Transmitter Crystals. Specify channel desired, make and model of equipment.

Type Z-9R—Receiver . . . . . \$2.95 Net  
Type Z-13—Receiver (Miniature) . . . . . 2.95 Net  
Type Z-13P—Receiver (Miniature) . . . . . 2.95 Net

### Type Z-9R, RADIO CONTROL

Supplied in all FCC assigned frequencies. Calibrated .005%. Specify frequency desired, make and model of equipment.

Type Z-9R—Radio Control . . . . . \$2.95 Net

### VHF Types, AIRCRAFT

For Lear, Narco and similar equipment operating in the 121 Mc. region, requiring crystals in 30 Mc. range.

Type Z-9R—Aircraft . . . . . \$4.95 Net  
Type Z-13—Aircraft (Miniature) . . . . . 4.95 Net  
Type Z-13P—Aircraft (Miniature) . . . . . 4.95 Net

### Type Z-6A

#### FREQUENCY STANDARD

Correlated in oscillator having load capacity of 32 mmfd. .486" pin spacing; .050" pins.

Type Z-6A—100 Kc. . . . . \$6.95 Net



### Type Z-1, MARS and CAP

Calibrated to .005% with 32 mmfd. crystal load capacity. Official assigned frequencies in the range.

1,600 to 10,000 Kc.  
\$3.45 Net

ORDER FROM YOUR JOBBER

**PETERSEN RADIO CO., INC.**

2800 W. BROADWAY  
COUNCIL BLUFFS, IOWA



# INTERNATIONAL POSTAL RATES

The following postal rates cover QSL cards, first class letters and air mail letters to Countries outside of the United States and Possessions.

First class rates are the rate for the first ounce. If the rate indicated is 11¢, add 7¢ for each additional ounce or fraction; if the rate indicated is 5¢, add 5¢ for each additional ounce or fraction.

Air mail rates are the rate for each half ounce, except where indicated.

International reply coupons of United States issue may be purchased at United States post offices for 15 cents each. Each coupon is exchangeable at a post office in any country for a stamp or stamps representing the international postage on a single rate surface letter. The column marked "RP" shows the number of international reply coupons required to prepay an air mail letter of the first weight unit from the countries indicated to the United States.

	QSL cards	First class	Air mail	RP		QSL cards	First class	Air mail	RP		QSL cards	First class	Air mail	RP
Aden.....	.07	.11	.25	5	Gabon.....	.07	.11	.25	2	Nigeria .....	.07	.11	.25	4
Afghanistan.....	.07	.11	.25	3	Gambia .....	.07	.11	.25	4	North Borneo (Sabah) .....	.07	.11	.25	
Aland Is. (Finnish) .....	.07	.11	.15	2	Germany, Western Zone .....	.07	.11	.15	2	Northern Ireland .....	.07	.11	.15	3
Albania.....	.07	.11	.15	2	Germany, Eastern Zone .....	.07	.11	.15	2	Norway .....	.07	.11	.15	2
Algeria.....	.07	.11	.15	2	Ghana .....	.07	.11	.25	6	Nyasaland (Malawi) .....	.07	.11	.25	5
Andorra.....	.07	.11	.15	2	Gibraltar (British) .....	.07	.11	.15	2					
Angola.....	.07	.11	.25	3	Gilbert and Ellice Is. ....	.07	.11	.25	4	Pakistan .....	.07	.11	.25	4
Argentina.....	.07	.11	.15	3	Goa (Portuguese India) .....	.07	.11	.25	3	Panama .....	.07	.11	.13	4
Ascension Is. (British) .....	.07	.11	.15	3	Great Britain .....	.07	.11	.15	3	Papua Territory (Australian) ...	.07	.11	.25	3
Australia.....	.07	.11	.25	3	Greece (incl. Crete) .....	.07	.11	.15	2	Paraguay .....	.07	.11	.15	3
Austria.....	.07	.11	.15	2	Greenland (Danish) .....	.07	.11	.15	2	Persian Gulf Ports .....	.07	.11	.25	4
Azores Is. (Portuguese) .....	.07	.11	.15	2	Guadaloupe Is. ....	.07	.11	.13	2	Peru .....	.07	.11	.15	
					Guatemala .....	.07	.11	.13	2	Philippines .....	.07	.11	.25	3
Bahama Is. (British) .....	.07	.11	.13	1	Guinea, Portuguese .....	.07	.11	.25	2	Pitcairn Is. (British) .....	.07	.11	.25	
Balearic Is. (Spanish) .....	.07	.11	.15	2	Guinea, Republic of .....	.07	.11	.25	2	Poland .....	.07	.11	.15	2
Barbados Is. (West Indies).....	.07	.11	.13	2						Portugal .....	.07	.11	.15	2
Bechuanaland.....	.07	.11	.25	5	Haiti .....	.07	.11	.13	5					
Belgium.....	.07	.11	.15	2	Honduras .....	.07	.11	.13	3	Reunion Is. (French) .....	.07	.11	.25	3
Bermuda Is. ....	.07	.11	.13	2	Hong Kong .....	.07	.11	.25	5	Rhodesia, Northern .....	.07	.11	.25	5
Bolivia.....	.07	.11	.15	2	Hungary .....	.07	.11	.15	3	Rhodesia, Southern .....	.07	.11	.25	5
Brazil.....	.07	.11	.15	6						Rio de Oro (Spanish Sahara) ...	.07	.11	.25	2
British Guiana.....	.07	.11	.15	2	Iceland .....	.07	.11	.15	2	Rio Muni (Spanish) .....	.07	.11	.25	3
British Honduras.....	.07	.11	.13	2	Ifni (Spanish).....	.07	.11	.25	2	Rumania .....	.07	.11	.15	3
Brunei.....	.07	.11	.25	7	India .....	.07	.11	.25	4	Rwanda .....	.07	.11	.25	2
Bulgaria.....	.07	.11	.15		Indonesia .....	.07	.11	.25	4	Ryukyu Is. (U.S.) .....	.07	.11	.25	5
Burma.....	.07	.11	.25	4	Iran .....	.07	.11	.25	3					
Burundi .....	.07	.11	.25	2	Iraq .....	.07	.11	.25	2	St. Helena Is. (British) .....	.07	.11	.25	3
					Ireland .....	.07	.11	.15	3	St. Pierre and Miquelon Is. (Fr.)	.07	.11	.13	2
Cambodia.....	.07	.11	.25	3	Israel .....	.07	.11	.25	3	Samoa, Western (British) .....	.07	.11	.25	4
Cameroun.....	.07	.11	.25	2	Italy .....	.07	.11	.15	2	Sarawak .....	.07	.11	.25	
Canada.....	.04	.05	.08*	2	Ivory Coast .....	.07	.11	.25	2	Saudi Arabia .....	.07	.11	.25	
Canary Is. (Spanish) .....	.07	.11	.15	2						Senegal .....	.07	.11	.25	2
Cape Verde Is. (Portuguese) ...	.07	.11	.25	3	Jamaica .....	.07	.11	.13	2	Seychelles Is. (British) .....	.07	.11	.25	3
Caribbean, Federation of British					Japan .....	.07	.11	.25	2	Sierra Leone .....	.07	.11	.25	4
Territories in the .....	.07	.11	.13	2	Jordan .....	.07	.11	.25	3	Solomon Is. (British) .....	.07	.11	.25	6
Cayman Is. (West Indies).....	.07	.11	.13	3						Somali Republic .....	.07	.11	.25	4
Central African Republic.....	.07	.11	.25	2	Kenya .....	.07	.11	.25	5	South Africa .....	.07	.11	.25	5
Ceylon.....	.07	.11	.25	5	Korea.....	.07	.11	.25	3	South-West Africa .....	.07	.11	.25	5
Chad.....	.07	.11	.25	2	Kuwait .....	.07	.11	.25	4	Spain .....	.07	.11	.15	2
Chile.....	.07	.11	.15	2						Sudan .....	.07	.11	.25	3
China (Taiwan).....	.07	.11	.25	3	Laos .....	.07	.11	.25	3	Surinam (Netherlands Guiana)	.07	.11	.15	1
China (Mainland).....	.07	.11	.25	3	Latvia (U.S.S.R.) .....	.07	.11	.25		Sweden .....	.07	.11	.15	
Colombia.....	.07	.11	.15	4	Lebanon .....	.07	.11	.25	3	Switzerland .....	.07	.11	.15	2
Comoro Is. (French) .....	.07	.11	.25	3	Leeward Is. (British West Indies)	.07	.11	.13	2	Syria (United Arab Republic) ...	.07	.11	.15	3
Congo (Brazzaville).....	.07	.11	.25	2	Liberia .....	.07	.11	.25	5					
Congo (Leopoldville).....	.07	.11	.25	2	Libya .....	.07	.11	.15	2	Tanganyika .....	.07	.11	.25	5
Cook Is. (New Zealand) .....	.07	.11	.25	3	Lithuania (U.S.S.R.) .....	.07	.11	.25		Tasmania (Australia) .....	.07	.11	.25	3
Corsica (French) .....	.07	.11	.15	2	Luxembourg .....	.07	.11	.15	2	Thailand .....	.07	.11	.25	3
Costa Rica.....	.07	.11	.13	2						Timor (Portuguese) .....	.07	.11	.25	4
Cuba.....	.07	.11	.13	4	Macao (Portuguese) .....	.07	.11	.25	3	Togo .....	.07	.11	.25	2
Cyprus.....	.07	.11	.25	3	Madeira Is. (Portuguese) .....	.07	.11	.15	2	Tonga Is. (British) .....	.07	.11	.25	3
Czechoslovakia.....	.07	.11	.15	3	Malagasy Republic (Madagascar)	.07	.11	.25	3	Trinidad and Tobago Is. (British)	.07	.11	.13	3
					Malaya, Federation of .....	.07	.11	.25	5	Tristan de Cunha & Gough Is. ...	.07	.11	.25	5
Dahomey.....	.07	.11	.25	2	Mali Republic .....	.07	.11	.25	2	Tunisia .....	.07	.11	.15	2
Denmark.....	.07	.11	.15	2	Malta (British) .....	.07	.11	.15	3	Turkey .....	.07	.11	.15	3
Dominican Republic.....	.07	.11	.13	2	Martinique (French) .....	.07	.11	.13	2	Turks & Caicos Is. (British) ...	.07	.11	.13	2
					Mauritania .....	.07	.11	.25	2					
Ecuador.....	.07	.11	.15	3	Mauritius (British) .....	.07	.11	.25	3	Uganda .....	.07	.11	.25	5
Egypt (United Arab Republic)...	.07	.11	.15	2	Mexico.....	.04	.05	.08*	2	U. S. S. R. ....	.07	.11	.25	
El Salvador.....	.07	.11	.13	2	Morocco .....	.07	.11	.15	2	Upper Volta .....	.07	.11	.25	2
Eritrea (Ethiopia).....	.07	.11	.25	3	Mozambique .....	.07	.11	.25	3	Uruguay .....	.07	.11	.15	7
Estonia (U.S.S.R.).....	.07	.11	.25											
Ethiopia.....	.07	.11	.25	3	Nauru Is. ....	.07	.11	.25	3	Vatican City .....	.07	.11	.15	2
					Nepal .....	.07	.11	.25	6	Venezuela .....	.07	.11	.15	2
Faeroe Is. (Danish) .....	.07	.11	.15	2	Netherlands .....	.07	.11	.15	2	Vietnam .....	.07	.11	.25	3
Falkland Is. (British).....	.07	.11	.15	3	Netherlands Antilles .....	.07	.11	.13	1					
Fiji Is. (British).....	.07	.11	.25	3	Neth. New Guinea (W. Irian)....	.07	.11	.25	3	Windward Is. (British West Indies)	.07	.11	.13	3
Finland .....	.07	.11	.15	2	New Caledonia (French) .....	.07	.11	.25	2					
France .....	.07	.11	.15	2	New Guinea, N.E. (Australian)	.07	.11	.25	3	Yemen .....	.07	.11	.25	
French Guiana .....	.07	.11	.15	2	New Hebrides Is. ....	.07	.11	.25	3	Yugoslavia .....	.07	.11	.15	
French Polynesia Is. ....	.07	.11	.25	2	New Zealand .....	.07	.11	.25	3					
French Somaliland .....	.07	.11	.25	2	Nicaragua .....	.07	.11	.13	4	Zanzibar .....	.07	.11	.25	5
					Niger .....	.07	.11	.25	2					

\* Rate per ounce

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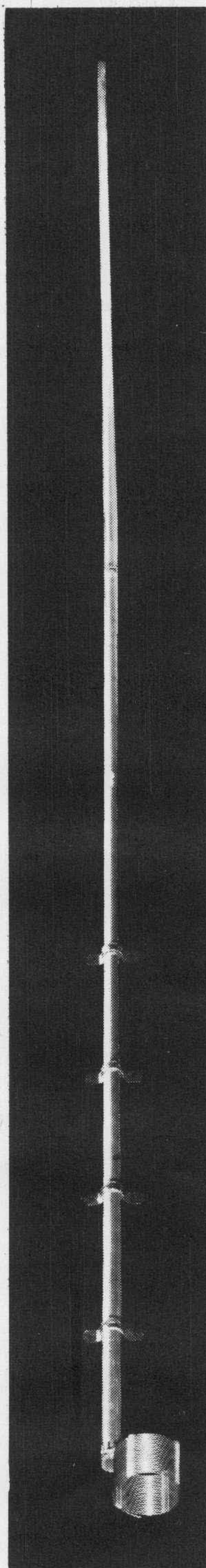
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# TELEGRAPHERS' ABBREVIATIONS IN CURRENT USE

— denotes short space, as in American Morse o, ee; c, te; &, es.

— denotes letters sent together, as in ar, sent .-.-.

## - A -

aa	all after
ab	all before
abl	able
abt	about
ads,adr	address
adv	advise
af	Africa
aftmn	afternoon
agn	again
ahd	ahead
aln	along
am	amplitude modulation
ani	any
anr	another
ant	antenna
app	appreciate
ar	end of message
as,as m	wait, wait a minute
au	fractions follow
aw	auf wiedersehn (Ger), see you later

## - B -

b	be
b4	before
balun	balanced-to-unbalanced
bc,bcl	broadcast, broadcast listener
bcnu	be seeing you
bd	buenos dias (Sp), bad
bda	birthday
bee,bo,bth	both, as in "u5 bee", up both (Morse)
bfo	beat frequency oscillator
bjr	bon jour (Fr)
bk,bkg	back,break,black,book,breaking
bkr	breaker,circuit-breaker
bn	been,brown,between,buenas noches (Sp)
bq	answer to rq (request)
brg,brng	bearing,heading
bsr	bon soir (Fr)
btr	better
buk	book

## - C -

c	yes
cd	card,could
cd,cud,cdnt	could,couldn't
cfm,cfmg	confirm,confirming
ck	check
ckt,cct	circuit
cl,clg	call,calling,closed
clbk	callback
clix	clicks
clr	clear
cndx,condx,cdx	conditions
cnt,cnti,cnty	count, county
cnvn	convention
coz,cos,cuz,becuz	because
cpi	copy
cq	general call to all stations
cs	call sign,call letters
cua,cuagn	see you again
cul	see you later
cum,cm,cmg	come,coming
cupla	a couple of
cw	continuous wave>manual keying

## - D -

da	day
dbl	double
dcn	direction
dct	direct
de	from
df	direction finder
dif,diff	difference
dlr,dld	dealer,deliver,delivered
dn,d	down (in frequency)
dnt,dmi	do not, don't mention it
dpe	dope,information
dr	dear
ds	thanks,danke schon (Ger)
dsnt	does not
dsw	goodbye,do svidaniya (Russian)
dunno	don't know
dx	distance, or rare station
dxpdn	dx expedition

## - E -

eam	old man
eh	?
el,els	antenna element(s)
em	them
eni,enibdi,eniwh	any,anybody,anyhow
ere	here
es,es	and (from Morse "&", sent .-.-)
eta	estimated time of arrival
etd	estimated time of departure
eu	Europe

## - F -

fb,vfb	fine business,good (enthusiastic approval)
fd	field day,feed,food
fer	for
fiver	QSA-5
fld	field,filed
flr	floor
fm,frm	from,frequency modulation
fnd	friend, find, found
fni	funny
foxes	teleprinter test tapes
freq,fq	frequency
fwd	forward
fyi	for your information

## - G -

ga	good afternoon,go ahead
gb	good bye
gd	good day, good
ges,gess	guess
gg	going
gl	good luck

## - G - (Cont.)

gld	glad
gn,gng	gone,green,going
gnd	ground
gotta	got to,have to,must
gp	ground plane,group (word)
grs	groups (as in msg code groups)
gud	good
gtgs	greetings
gv,gvg	give,giving

## - H -

hd,hrd	had,hard,heard
hdg	heading,antenna azimuth
hed	he would
hi	high, laughter, (sometimes !)
hlo	hello
hlv	hasta la vista (Sp),see you later
hpe,hpg	hope,hoping
hpi	happy
hpn,wa hpn	happen,what happened
hq,hqtrs	headquarters
hr,hrg,hrs	here,hear,hour,hearing,here is,hours
hv,hvnt,hvg	have,haven't,haveing
hvi	heavy
hw,hws	how? how is?

## - I -

i?	ready? here goes the tape
id	I would
ie	clear? (response: i-go, e-wait)
im	I'm,him,intermodulation
imi	?
info	information
irpt	I repeat

## - K -

k	go ahead,end of transmission
ka	beginning of transmission (formal)
klix	clicks
klvb	que (ke) le vaya bien (Sp) "That it goes well with you"
kn	go ahead, but only the station(s) called, I will answer no other calls,known
knw	know

## - L -

lkg	looking
ll	landline,telephone or telegraph
lng	long
lotsa	lots of
lp	long path (long way around earth)
lsn	listen
ltr	letter, later
lv,lvq	leave,leaving
lw	long wave,"lone wolf" (independent DXer)

## - M -

mag,rag	magazine
mci,mci bcp	merci, merci beaucoup (Fr), thanks
mgr	manager
mi	my
mil,mill,ma	milliampere,typewriter
min	minute,minimum
mk	mark (opposite of space)
ml,mlg	mail,mailing
mng	morning,meaning
mni	many
mnl	manual
mo	moment
msg	message

## - N -

n	no
nd	nothing doing
ng	no good
nil	nothing
nir	lazy "nil"
nm	nothing more,no more
nn	noon
no	know
nr	near,number
nvr	never
nw	now

## - O -

ob,eeb	old boy
oc	old chap
ok,EEK	all correct
ol	old lady
om,eam	old man
op,opr	operator
opn,opg	operation,operating
ot	old timer

## - P -

pa	power amplifier
pbl,pbli	probable,preamble,probably
pctcs	practices
pd	period,paid
pdg	pure dc,clear note
pkg	package,parking
plsr	pleasure
ppgn	propagation
ppl	people
prtbl	portable
pse,pls,psd	please,pleased
psbl,psbli	possible, possibly
psn,psn	position
pt,ptd,ptg	point,part,pointed,pointing
pwr	power

## - Q -

qhm	tuning from high frequency to middle of band
qlf	try sending with left foot awhile
qlm	tuning from low frequency to middle of band
qlz	operator too lazy
qmh	tuning from middle frequency to high frequency
qml	tuning from middle frequency to low frequency
qmt	try mailing your tlc
qrnn	man-made electrical noise
qsl	mail card confirming qso
qsl	send card after receiving mine
qst	of interest to all amateurs

## - R -

r	received
rac	rectified ac
rc	rag chew
rcd,rcd	received
rcr,rcr,rcvr,rx	receiver
rd	read (copy),red
rdi,rdy	ready
rdo	radio,radio station
re	concerning
reg,regs	regular,regulations
rito	righto
rm	room
rng	running
rockbound,rockbnd	crystal controlled, no vfo
rpt	report,repeat
rq	request
rst	readability 1-5,strength 1-9,tone 1-9

## - S -

sa,sez,sed,sa	say,says,said,South America
sae	self-addressed envelope
sase	self-addressed stamped envelope
sb,ssb	single sideband
sgd	signed
shd,shud,shudn't	should,shouldn't
sig,sigs	signal(s),signature
simo	simultaneously
sked	schedule
sl	see you later
sn	soon,seen,signal/noise
sp	short path (the closer great-circle path)
sri	sorry
ss	sweepstakes
ssn	season,as in "ssns gtgs"
stn	station
su	I'll see you
sum	some
sumbdi	somebody
svc	service
svl	several
sw	switch,short wave
sx	dollar sign "\$"

## - T -

tbl,trbl	trouble
tfc	traffic, messages
thr	there,their
tmw	tomorrow
tng	tuning,thing
tnk	think
tnsmn	transmission
tr	transit,position,there,transmit/receive
T/R	transmit/receive
trix	tricks
tt,tts	that,that is
tu,tku,tnx,tk	thank you, thanks
tv,tvi	television,television interference
twx	telegram
tx,trans	transmitter

## - U -

u,up	you,upward in frequency
ufb	vfb,very fine business (Rus)
uk	United Kingdom
ul,ud	you will,you would
undld	undelivered
unhrd	unheard
ur,urs	your,yours
ut	universal time,GMT,"Zebra" time

## - V -

va	signing off (same as sk)
vert	vertical
vfb	very fine business
vfo	variable-frequency oscillator
vjo	viejo (Sp),old man
vox	voice-operated switch
vy,vri	very
vxo	variable crystal oscillator

## - W -

w,wt	watt
wa	word after
wat,watsa	what,what do you say?
wb	word before
wd	word,would
wee	who?
wed	we would
wh	white
wid	with
wilco	will comply,will do
wk,wkg	week, weak, work, working, QSOing
wri	worry
wx,wea	weather

## - X -

xtl	crystal
xtr,xmtr	transmitter
xq	fill, or repeat of unreceived copy

## - Y -

yda	yesterday
yl,xyl	young lady,married young lady
yr	year,your

## - Z -

z	Greenwich Mean Time, UT, "zebra"
zedder	New Zealander
zi	zone of the interior (continental USA)
zilch	nothing

NUMBER CODE:	1 - a	6 - 6
	2 - u	7 - b
	3 - v	8 - d
	4 - 4	9 - n
	5 - e	0 - t

73	best wishes
88	love and kisses
99 (rare)	keep out



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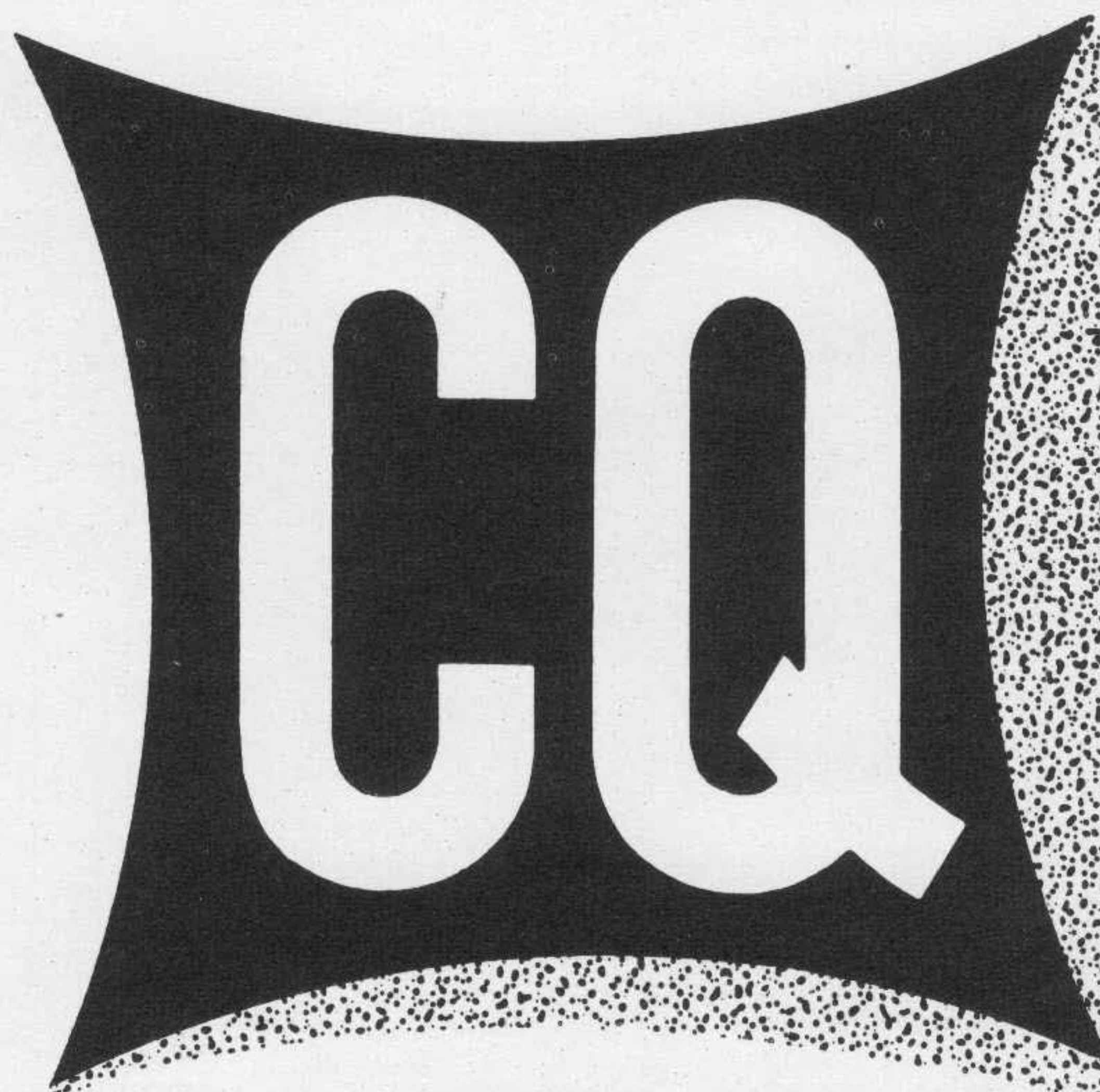
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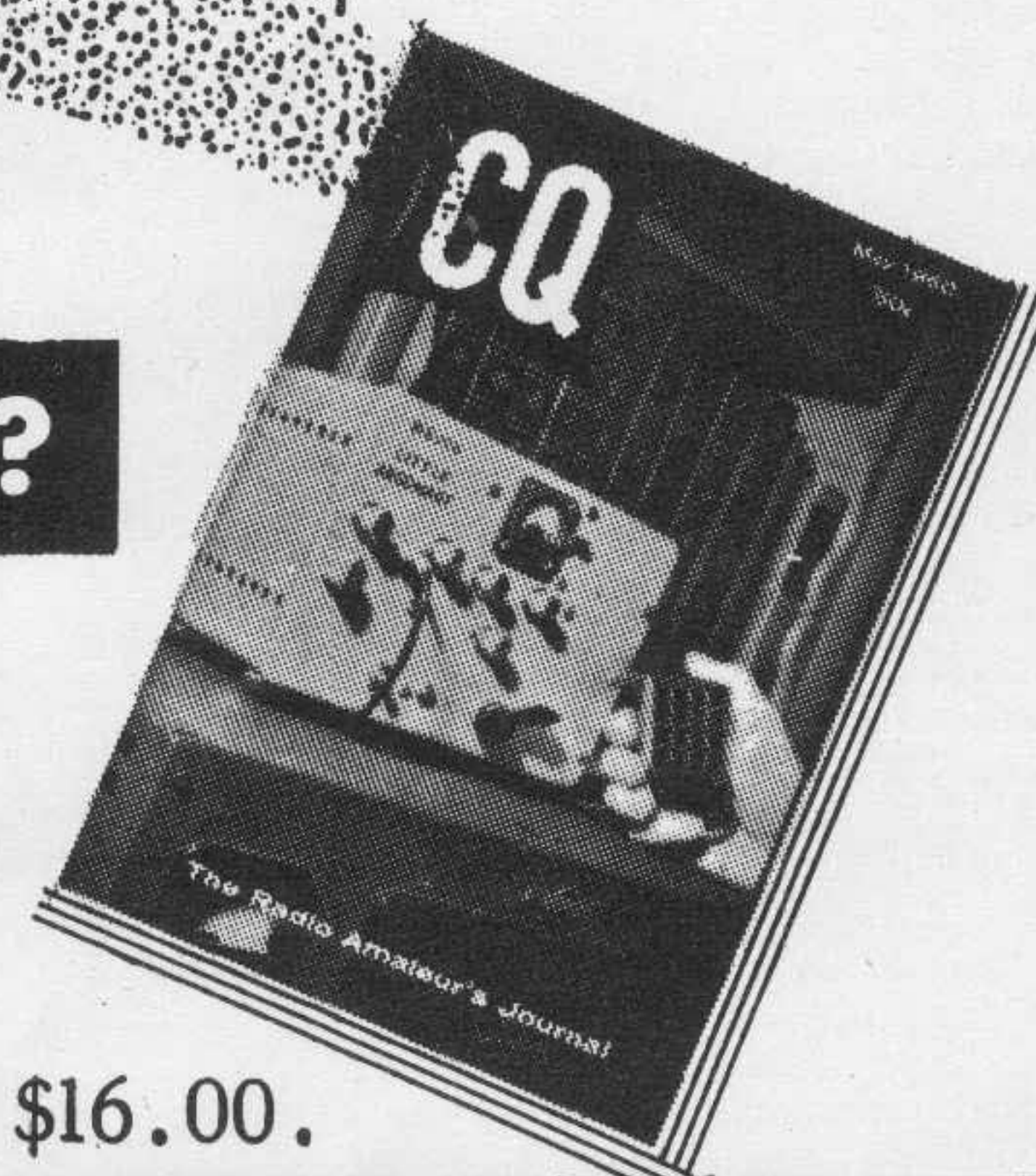
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## DX OPERATING CODE

(For W/VE Amateurs)

Some amateur DXers have caused considerable confusion and QRM in their efforts to work DX stations. The points below, if observed by all W/VE amateurs, will help make DX more enjoyable for all.

1. Call DX only after he calls CQ, QRZ? or signs SK, or 'phone equivalents thereof. Make your calls short.
2. Do not call a DX station:
  - a. On the frequency of the station he is calling until you are sure the QSO is over (SK).
  - b. Because you hear someone else calling him.
  - c. When he signs KN, AR or CL.
  - d. Exactly on his frequency.
  - e. After he calls a directional CQ, unless of course you are in the right direction or area.
3. Keep within frequency band limits. Some DX stations can get away with working outside, but you cannot.
4. Observe calling instructions given by DX stations.  
Example: "15U" means "call 15 kc. up from my frequency".  
"15D" means down, etc.
5. Give honest reports. Many DX stations depend on W/VE reports for adjustment of station and equipment.
6. Keep your signal clean. Key clicks, ripple, feedback or splatter give you a bad reputation and may get you a citation from FCC.
7. Listen and call the station you want. Calling CQ DX is not the best assurance that the rare DX will reply.
8. When there are several W or VE stations waiting, avoid asking DX to "listen for a friend". Also avoid engaging him in a rag chew against his wishes.

(For Overseas Amateurs)

To all overseas amateur stations:

In their eagerness to work you, many W and VE amateurs resort to practices which cause confusion and QRM. Most of this is good-intentioned but ill-advised; some of it is intentional and selfish. The key to the cessation of unethical DX operating practices is in your hands. We believe that your adoption of certain operating habits will increase your enjoyment of amateur radio and that of amateurs on this side who are eager to work you. We recommend your adoption of the following principles:

1. Do not answer calls on your own frequency.
2. Answer calls from W/VE stations only when their signals are of good quality.
3. Refuse to answer calls from other stations when you are already in contact with someone, and do not acknowledge calls from amateurs who indicate they wish to be "next".
4. Give everybody a break. When many W/VE amateurs are patiently and quietly waiting to work you, avoid complying with requests to "listen for a friend".
5. Tell listeners where to call you by indicating how many kilocycles up (U) or down (D) from your frequency you are listening. Examples: c.w. - "CQ DX CQ DX CQ DX 15U DE AC4YN AC4YN AC4YN 15U K"; 'phone - "Answer 15 kilocycles up from my frequency".
6. Use the ARRL-recommended ending signals, especially KN, to indicate to impatient listeners the status of the QSO. (KN means "Go ahead (specific station), all others keep out".)
7. Let it be known that you avoid working amateurs who are constant violators of the above principles.

ARRL Communications Department



# STANDARD TIME THROUGHOUT THE WORLD

Compiled by the National Bureau of Standards

Standard time for the world, like longitude, is counted from Greenwich, England, as the prime meridian. Places to the east of Greenwich have faster time than Greenwich, while places to the west have slower time. The world is divided into time zones of approximately 15° for every hour. Since Greenwich is in the 0 zone, the number of any zone, if added or subtracted to the time in Greenwich, will give the corresponding time in that particular zone.

Not all countries follow the International Time Zone System, but some use the time of some principal city as a standard and others have no standard time. The different time zones of the world are numbered east and west of Greenwich. The zone number when added or subtracted, as shown in the following table, from the time of the zone gives the corresponding Greenwich time. Thus zones to the east have faster time than Greenwich and are indicated as minus (—), while those to the west have slower time and are indicated as plus (+).

Country	Zone Number
Admiralty Islands	—10
Afghanistan	—4
Alaska	
Juneau, Ketchikan, Sitka	+8
Cordova	+9
Central part	+10
West coast, Aleutian Islands	+11
Albania†	—1
Algeria	—0
Amirante Islands	—4
Amsterdam Island	—5
Andaman Islands	—6½
Andora†	0
Anglo-Egyptian Sudan	—2
Angola	—1
Anguilla Island	+4
Antigua Island	+4
Arabia†	
Aden†	—3
Argentina†	+4
Aru Islands	—9
Ascension Island	0
Austral (.ubuai) Islands	+10
Australia	
Western Australia	—8
Northern Territory, South Australia†	—9½
New South Wales,† Queensland, Victoria*	—10
Austria†	—1
Azores Islands†	0
Bahama Islands	+5
Bahrein Islands	—4
Balearic Islands†	0
Barbados Island†	+4
Bechuanaland	—2
Belgium†	0
Bermuda Islands†	+4
Bhutan	—5½
Bolivia	+4
Borneo†	—8
Brazil	
Fernando Noronha Island, Isle de Trinidade	+2
Bahia, Ceara, Esperito Santo, Goyaz, Miranhao, Minas-Geraes, Para, Parana, Pernambuco, Piauh, Rio de Janeiro, Rio Grande do Norte, Rio Grande do Sul, Santa Catherina, Sao Paulo	+3
Amazonas, Matto Grosso	+4
Acre Territory	+5
British Honduras†	+6
Bulgaria	—3
Burma	—6½
Cameroons	—1
Canada	
Belle Isle, Labrador,† Newfoundland†	+3½
Anticosti Island, Cape Breton Island, Magdalen Island, New Brunswick,† Nova Scotia,† Prince Edward Island, Quebec (east of 68° W.),† Sable Island	+4
Melville Peninsula (east), Ontario (east of 90° W.),† Quebec (west of 68 W.),† Southampton Island	+5
Manitoba, Ontario (west of 90° W.), Melville Peninsula (west), Northwest Territories (east)	+6
Alberta, Saskatchewan, Northwest Territories (middle)	+7
British Columbia, Northwest Territories (west)	+8
Yukon	+9
Arctic Islands†	
Canary Islands†	+1
Cape Verde Islands	+2
Caroline Islands	—10
Ceylon Island†	—5½
Chagos Archipelago†	—5
Chile	+4
China	
Western part	—5
Mid-Western part	—6
Mid-Eastern part, Hainan, Palekoi, Hongkong, Macao	—7
Eastern part	—8
Christmas Island	—7
Colombia	+5
Congo	
Western part	—1
Eastern part	—2
Cook Islands	
Costa Rica	+6
Cuba†	+5
Curacao Island	+4½
Cyprus Island	—2
Czechoslovakia	—1
Dahomey	0
Denmark†	—1
Dodecanese Islands	—2
Dominican Republic†	+5

Country	Zone Number
Ecuador	+5
Egypt†	—2
Eire†	0
Ellice Islands	—12
El Salvador	+6
England†	0
Equatorial Africa, French	—1
Eritrea	—3
Ethiopia	—3
Falkland Islands†	+4
Fanning Island	+11
Faroe Islands	0
Finland†	—2
France†	0
Gambia	0
Germany†	—1
Gibraltar†	0
Gilbert Islands	—12
Gold Coast†	0
Greece†	—2
Scoresby Sound	+2
Angmagssalik, Disko Island, Western Coast	+3
Interior†	
Grenada Island	+4
Guadeloupe Island	+4
Guam Island	—10
Guatemala	+6
Guiana, British, Dutch, French	+3½
Guinea	
French, Spanish	0
Portuguese	+1
Haiti	+5
Hawaiian Islands	+10
Hebrides Islands	0
Honduras	+6
Hungary†	—1
Iceland†	+1
India†	—5½
Indo-China†	—8
Iran	—3½
Iraq†	—3
Ireland, Northern†	0
Isle of Man	0
Isle of Pines	+5
Italy†	—1
Jamaica	+5
Japan†	—9
Java	—8
Kenya	—3
Kodiak Island	+10
Korea	—8½
Labrador	+3½
Laccadive Islands	—5½
Latvia*	—2
Liberia	
Libya*	—1
Liechtenstein	—1
Lithuania*	—2
Lord Howe Island	—10½
Luxembourg*	0
Madagascar Island	—3
Madeira Islands	0
Malay States	—7½
Maldiv Islands	
Malta Island	—1
Marshall Islands	—12
Martinique Island	+4
Mauritius Island	+4
Mexico*	
Aguascalientes, Campeche, Chiapas, Chihuahua, Coahuila, Durango, Guanajuato, Guerrero, Jalisco, Mexico, Michoacan, Morelos, Nuevo Leon, Oaxaca, Puebla, Queretaro, Quintana Roo, San Luis Potosi, Tabasco, Tamaulipas, Tlaxcala, Yucatan	+6
Baja California (south of 28° N.), Nayarit, Sinaloa, Sonora	+7
Baja California (north of 28° N.)	+8
Midway Island	+11
Monaco§	0
Morocco§	0
Mozambique	—2
Nepal	—5½
Netherlands	0
New Caledonia Islands	—11
Newfoundland§	+3½
New Guinea	
Western part (Dutch)	—9
Eastern part (British)	—10
New Hebrides Islands	—11
New Zealand§	—12
Nicaragua	+6
Nigeria	—1
Norfolk Island	—11½
Northern Ireland§	0

Country	Zone Number
Norway§	—1
Nyasaland	—2
Orkney Islands	0
Pakistan	—5½
Palestine†	—2
Panama	+5
Paraguay	+4
Peru†	+5
Philippine Islands	—8
Poland	
Western part	—1
Eastern part	—2
Portugal†	0
Puerto Rico	+4
Reunion Island	—4
Rhodesia	
Northern	—2
Southern	—2
Rio de Oro	+1
Rumania	—2
Samoa Islands	+11
San Marino†	—1
Sarawak	—8
Saudi Arabia†	
Scotland	0
Senegal†	0
Seychelles Islands	—4
Siam	—7
Sierra Leone	0
Society Islands	+10
Solomon Islands	—11
Somaliland	—3
Southwest Africa	—2
Spain†	0
Spitzbergen†	
St. Croix Island	+4
St. Helena Island	0
St. Lawrence Island	+11
St. Lucia Island	+4
St. Matthew Island	+11
St. Miguel Island	0
St. Pierre Island†	+4
St. Thomas Island	+4
St. Vincent Island	+4
Sudan (French West Africa)	
Eastern part	0
Western part	+1
Sumatra Island	—7
Sweden	—1
Switzerland†	—1
Syria†	—2
Tanganyika	—3
Tangier	0
Tasmania Island†	—10
Timor Island	—9
Tobago Island	+4
Togoland	0
Tonga (Friendly) Islands	
Transjordan*	
Trinidad Island	+4
Tunisia	—1
Turkey†	—2
Turks Island	+5
Uganda	—3
Union of South Africa†	—2
United States of America†	
Eastern	+5
Central	+6
Mountain	+7
Pacific	+8
Alaska	+10
Uruguay†	+3
U. S. S. R.†	
Estonia, Karelo-Finnish, Latvia, Lithuania, Moldavia, Russia, Ukraine, White Russia	—2
Armenia, Azerbaijan, Georgia	—3
Kazak, Tadzhik, Turkmen, Uzbek	—4
Kirghiz, W. Siberian Region	—5
Approximately 82½° to 97½°	—6
Buryat-Mongol, E. Siberian Region	—7
Approximately 112½° to 127½°	—8
Kuril Islands, Sakhalin	—9
Approximately 142½° to 157½°	—10
Approximately 157½° to 172½°	—11
Approximately 172½° to coast	—12
Vatican City	—1
Venezuela	+4½
Virgin Islands	+4
Wake Island	—12
Wales	0
Wrangell Island	—12
Yap Island	—10
Yugoslavia	—1
Zanzibar Island	—3

\*See time Zone Chart of the World No. 5192, published by Hydrographic Office, Navy.

†Fast time in use during part of the year.

‡No definite standard time used.  
§1 hour or 2 hours fast, fixed annually.



# Z-CODE FOR POINT-TO-POINT SERVICE

## Asterisk indicates U. S. Military Usage

NOTE: Numbers 1-5 following the "Z" signal mean:

1. Very slight
2. Slight
3. Moderate
4. Severe
5. Extreme

### - A -

\*ZAA YOU ARE NOT OBSERVING CIRCUIT DISCIPLINE.  
 \*ZAB YOUR SPEED KEY IMPROPERLY ADJUSTED.  
 ZAC Advise (Call sign of) frequency you are reading.  
 \*ZAC Cease using speed key.  
 \*ZAD Signal (1) Not understood (2) Not held.  
 \*ZAE Unable to receive you, try via \_\_\_\_\_.  
 \*ZAF Reroute the circuit by patching.  
 \*ZAH Unable to relay. We file.  
 \*ZAI Run (foxes, RY's, mk, etc.)  
 \*ZAJ Have been unable to break you.  
 ZAL Alter your wave-length.  
 \*ZAL Closing down, due to \_\_\_\_\_.  
 ZAN WE CAN RECEIVE ABSOLUTELY NOTHING.  
 \*ZAN Transmit only msgs of above precedence  
 \*ZAO CAN'T UNDERSTAND VOICE. USE TELEGRAPH.  
 ZAP ACKNOWLEDGE, PLEASE.  
 \*ZAP Work (simplex, duplex, mux, sb).  
 \*ZAQ Last word received (sent) was \_\_\_\_\_.  
 ZAR Revert to Automatic Relay.  
 \*ZAS Rerun tapes run on \_\_\_\_\_ since \_\_\_\_\_.  
 \*ZAT Punching tape for transmission.  
 \*ZAV Send blind until advised.  
 \*ZAY Send on (kcs). Will confirm later.  
 \*ZAX You are causing interference.

### - B -

\*ZBA Cause of delay is \_\_\_\_\_.  
 \*ZBD Following was sent (time).  
 \*ZBE Retransmit message \_\_\_\_\_ to \_\_\_\_\_.  
 \*ZBG You are sending upper case.  
 \*ZBH Make call before transmitting traffic.  
 \*ZBI Listen for telephony.  
 \*ZBL Do not use break-in.  
 \*ZBM Put \_\_\_\_\_ (speed opr.) this frequency.  
 ZBN Break and go ahead with New slip.  
 \*ZBN Your tape reversed.  
 \*ZBO I HAVE TRAFFIC.  
 \*ZBP (1) Characters indistinct (2) Spacing bad.  
 \*ZBQ When & on what frequency was message received.  
 ZBR Break circuit. Retuning.  
 \*ZBR Shall I send by (method).  
 ZBS Blurring Signals (1) Dots heavy (2) Dots light.  
 \*ZBT Count \_\_\_\_\_ as \_\_\_\_\_ groups.  
 \*ZBU Report when in communication with \_\_\_\_\_.  
 \*ZBV Answer on \_\_\_\_\_ mc.  
 \*ZBW I shift (or ask \_\_\_\_\_) to (kcs).  
 ZBY Pull Back your tape one Yard.

### - C -

ZCA Circuit Affected. Make readable signals.  
 ZCB Circuit Broken. Signal unheard.  
 ZCC Collate Code.  
 ZCD Your Collation is Different.  
 ZCF CHECK YOUR CENTER FREQUENCY, PLEASE.  
 ZCI Circuit Interrupted. Running & available.  
 ZCK Check Keying.  
 ZCL TRANSMIT CALL LETTERS INTELLIGIBLY.  
 ZCO Your Collation Omitted.  
 ZCP Conditions Poor, increase to maximum.  
 ZCR Using concentrator. Make warning signals.  
 ZCS Cease Sending.  
 ZCT Send Code Twice.  
 ZCW Are you in direct Communication With \_\_\_\_\_?

### - D -

\*ZDA Hr. formal message, priority \_\_\_\_\_.  
 \*ZDB Expedite reply to my \_\_\_\_\_.  
 ZDC Diagnosing Circuit faults, will advise.  
 ZDE Message undelivered. (1) Will keep trying  
 (2) Advise disposal (3) Cancelling (4) Btr. ads.  
 \*ZDE Message \_\_\_\_\_ undelivered.  
 ZDF Frequency is Drifting to degree indicated, 1-5.  
 \*ZDF Message \_\_\_\_\_ received by addressee (time).  
 \*ZDG Accuracy of following doubtful.  
 ZDH Your Dots are too Heavy (long).  
 ZDL Your Dots are too Light (short).  
 ZDM Your Dots Missing.  
 \*ZDM This is a multiple-address message.  
 \*ZDN Report disposal of message \_\_\_\_\_.  
 \*ZDQ Message \_\_\_\_\_ relayed to \_\_\_\_\_ at \_\_\_\_\_ by \_\_\_\_\_.  
 \*ZDS Msg just trans erroneous. Correct version is \_\_\_\_\_.  
 ZDT Following Transmitters running Dual.  
 \*ZDT Don't Transmit exercise messages until advised.  
 ZDV Your Dots Varying length, please remedy.  
 \*ZDV Private message received for \_\_\_\_\_. Advise.  
 \*ZDY No private messages until ordered.

### - E -

\*ZEC Have you received message \_\_\_\_\_?  
 ZED Experiencing Drop-outs, 1-5.  
 ZEF We are Experiencing Fill-ins, 1-5.  
 ZEG We are Experiencing Garbles, 1-5.  
 \*ZEI Accuracy of heading doubtful.  
 \*ZEK No answer required.  
 \*ZEL This message is correction to \_\_\_\_\_.  
 \*ZEN This message is classified.  
 \*ZEP Parts marked ZEP coming later.  
 \*ZEU Exercise (drill message).

### - F -

ZFA Failing Auto.  
 \*ZFA Message intercepted or copied blind.  
 ZFB SIGNALS ARE FADING BADLY.  
 \*ZFB Pass this message to \_\_\_\_\_.  
 ZFC Check your FSK shift, please.  
 ZFD Depth of Fading is as indicated, 1-5.  
 \*ZFD This message is a suspected duplicate.  
 \*ZFF Advise when message received by \_\_\_\_\_.  
 \*ZFH Message for (1) Action, (2) Info, (3) Comment.  
 \*ZFI Reply to message? There is no reply.  
 ZFK Revert to FSK.  
 ZFO SIGNALS FADED OUT.  
 ZFQ/x Frequency shift your signal is \_\_\_\_\_ cps.  
 ZFR Rapidity of Fading is as indicated, 1-5.  
 \*ZFR Cancel transmission \_\_\_\_\_.  
 ZFS Signals are Fading Slightly.

### - G -

\*ZGB Send (Answer).  
 ZGF \_\_\_\_\_ signals Good For \_\_\_\_\_ wpm.  
 \*ZGF Make call signs more distinctly.  
 ZGP Please Give Priority.  
 ZGS YOUR SIGNALS GETTING STRONGER.  
 ZGW YOUR SIGNALS GETTING WEAKER.

### - H -

ZHA How are conditions for Auto reception?  
 ZHC HOW ARE YOUR RECEIVING CONDITIONS?  
 ZHM/x Harmonic radiation from transmitter.  
 ZHS Send High Speed auto \_\_\_\_\_ wpm.  
 ZHY We are Holding Your \_\_\_\_\_.

### - I -

ZIM Industrial or Medical interference, 1-5.  
 ZIP Increase Power.  
 ZIR You have strong Idle Radiation.  
 ZIS Atmospheric Interference, 1-5.

### - J -

ZJF Frequency Jumping to degree indicated, 1-5.

### - K -

\*ZKA Who is controlling station? or I am \_\_\_\_\_.  
 \*ZKB Permission necessary before transmitting msgs.  
 \*ZKD Take control of net \_\_\_\_\_ or shall I \_\_\_\_\_.  
 \*ZKE I (or \_\_\_\_\_) reports into circuit (net).  
 \*ZKF Station leaves net temporarily.  
 \*ZKJ Closing down (until \_\_\_\_\_).  
 ZKO REVERT TO ON/OFF KEYING.  
 ZKQ Say when ready to resume.  
 \*ZKS What Stations Keeping watch on \_\_\_\_\_?  
 ZKW Keying Weight is \_\_\_\_\_ (percent).

### - L -

ZLB Give Long Breaks, please.  
 ZLD We are getting Long Dash from you.  
 ZLL Distorted LandLine control signals.  
 ZLP Low (minimum) Power.  
 ZLS WE ARE SUFFERING FROM LIGHTNING STORM.

### - M -

ZMG Magnetic activity.  
 ZMO STAND BY MOMENT.  
 ZMP MisPunch or Perforator failures.  
 ZMQ Stand by for \_\_\_\_\_.  
 ZMU/x Multipath making \_\_\_\_\_ mark bias.

### - N -

ZNB No Breaks, we send twice.  
 \*ZNB Authentication is \_\_\_\_\_.  
 ZNC NO COMMUNICATIONS WITH \_\_\_\_\_.  
 \*ZNC All stations authenticate.  
 \*ZND You are misusing authenticator.  
 ZNG Receiving conditions No Good for code.  
 ZNI NO CALL LETTERS (IDENTIFICATION) HEARD.  
 ZNN ALL CLEAR OF TRAFFIC.  
 ZNO Not On the air.  
 ZNR Not Received.  
 ZNS Here New Slip.

### - O -

ZOA Have checked (call-letters) \_\_\_\_\_ OK.  
 \*ZOC Relay to your sub-stations.  
 ZOD Observing \_\_\_\_\_ will transfer when better.  
 \*ZOD Act as radio link between me and \_\_\_\_\_.  
 \*ZOE Can you accept message? (or) Give me message.  
 \*ZOF Relay this message.  
 \*ZOG Transmit your message (give info.).  
 ZOH What traffic have you On Hand?  
 ZOK WE ARE RECEIVING OK.  
 \*ZOK Relay this message via \_\_\_\_\_.  
 ZOL OK. On Line.  
 \*ZOM Mail delivery permissible.  
 ZOR Transmit Only Reversals.  
 \*ZOU Give instructions for routing traffic.  
 \*ZOZ Obtain retransmission of message \_\_\_\_\_.

### - P -

ZPA Printer line Advance not received.  
 \*ZPA Your speech distorted.  
 ZPC Printer Carriage-return not received.  
 \*ZPC Signals fading, 1-5.  
 ZPE Punch Everything.  
 ZPF Printer motor Fast.  
 ZPO Send Plain Once.  
 ZPP Punch Plain only.  
 ZPR Rerun slip at Present Running.  
 ZPS Printer motor Slow.  
 ZPT Send Plain Twice.

### - R -

ZRA Reverse Auto tape.  
 \*ZRA Mr frequency OK? Your frequency is \_\_\_\_\_.  
 ZRB Relayed signal Bad, adjust receiver.  
 \*ZRB Check your frequency on this circuit.  
 ZRC Can you Receive Code?  
 \*ZRC Shall I, or tune your transmitter to \_\_\_\_\_.  
 \*ZRE Hear you best on (kcs).  
 \*ZRF Send tuning signals on present frequency.  
 ZRK Reversed Keying.  
 ZRL Rerun slip before one now running.  
 ZRM Please Remove Modulation from \_\_\_\_\_.  
 \*ZRM I receive (usb, lsb, isb's)  
 ZRN ROUGH NOTE.  
 ZRO ARE YOU RECEIVING OK?  
 ZRR Run Reversals.  
 ZRS Rerun message No. \_\_\_\_\_.  
 ZRT Revert to Traffic.  
 ZRY Run test slip, please.

### - S -

ZSF SEND FASTER.  
 ZSH STATIC HEAVY HERE.  
 ZSI/x Please furnish Signal Intensity.  
 ZSM/x Microvolt input to receiver is \_\_\_\_\_.  
 ZSN Give SINPO report on \_\_\_\_\_  
 S Signal strength.  
 I Interference.  
 N Noise.  
 P Propagation.  
 O Overall readability.

ZSO Transmit Slips Once.  
 ZSR YOUR SIGNALS STRONG & READABLE.  
 ZSS Send Slower.  
 ZST Transmit Slips Twice.  
 ZSU YOUR SIGNALS ARE UNREADABLE.  
 ZSV Your Speed Varying.

### - T -

ZTA Transmit by Auto.  
 ZTH Transmit by Hand.  
 ZTI Transmission temporarily Interrupted.

### - U -

ZUA Conditions Unsuitable for Automatic recording.  
 \*ZUA Timing signal will be transmitted.  
 ZUB WE HAVE BEEN UNABLE TO BREAK YOU.  
 ZUC UNABLE TO COMPLY. WILL DO SO AT \_\_\_\_\_.  
 \*ZUE Affirmative (Yes).  
 \*ZUG Negative (No).  
 \*ZUH Unable to comply.  
 \*ZUJ Wait. Stand by.

### - V -

ZVB Varying Bias.  
 ZVF Signals Varying in Frequency.  
 ZVP Send V's Please.  
 \*ZVR Pass at once to sub-stations.  
 ZVS Signals Varying in intensity.

### - W -

\*ZWB Name of operator on watch.  
 ZWC Wipers or Clicks here.  
 ZWO SEND WORDS ONCE.  
 ZWR YOUR SIGNALS WEAK BUT READABLE.  
 ZWS Wavelength (frequency) is Swinging, 1-5.  
 ZWT SEND WORDS TWICE.

### - Y -

ZYS WHAT IS YOUR SPEED OF TRANSMISSION?  
 - Z -

\*ZZF Incorrect.  
 \*ZZG You are correct.  
 \*ZZH TRY AGAIN.

### MULTIPLEX

ZYA Cease traffic; send A's on A channel.  
 ZYC Cycling on ARQ, errors stored your end.  
 ZYK Check Your Keying on channel \_\_\_\_\_.  
 ZYM Change from single printer to Multiplex.  
 ZYN Make bias Neutral.  
 ZYP Change from multiplex to single Printer.  
 ZYR Please put \_\_\_\_\_ on MUX revolutions.  
 ZYT Check Your Thyatrons.  
 ZYX/x Revert to MUX frames \_\_\_\_\_ channels.

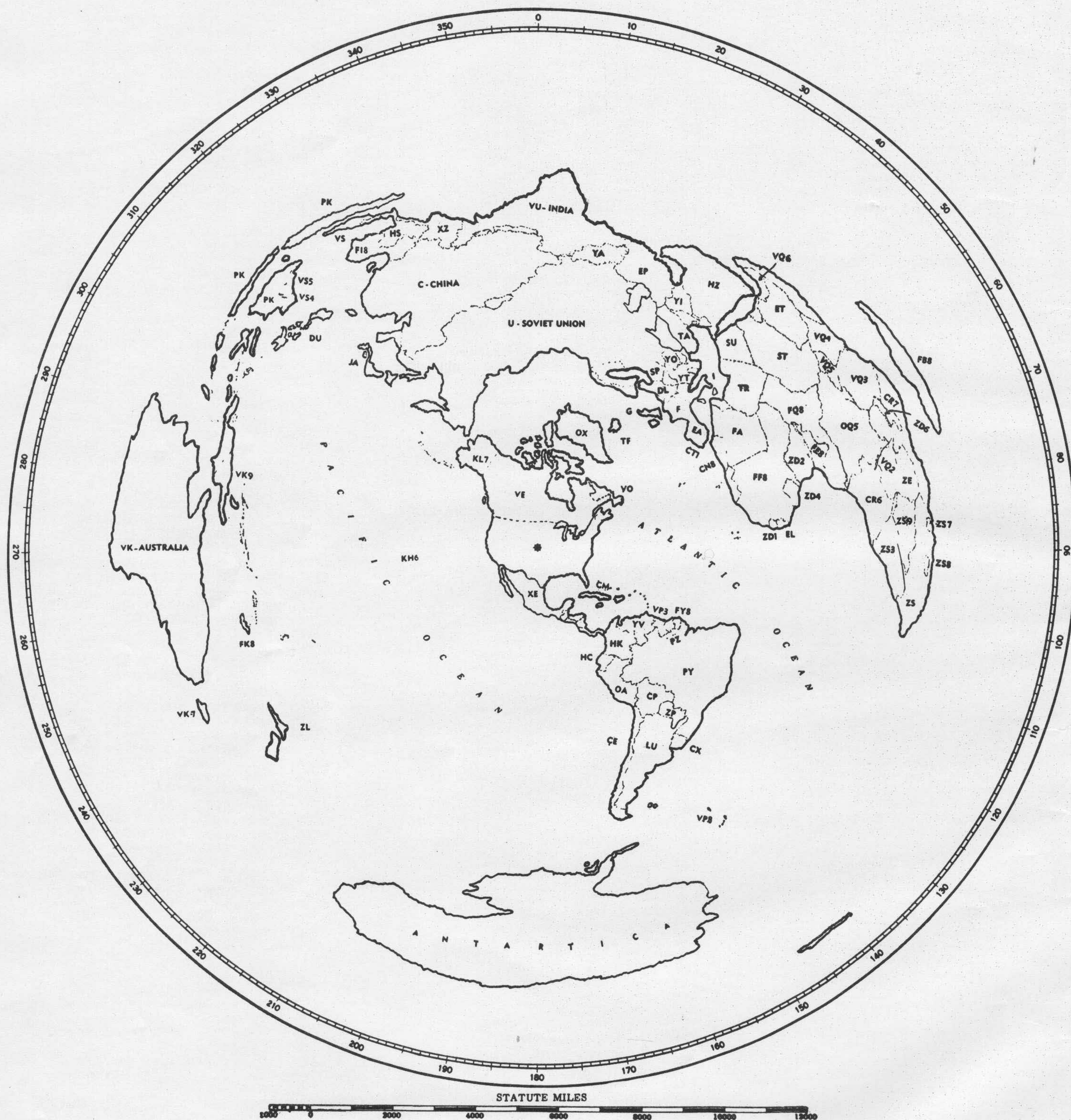
### RADIOPHOTO AND FACSIMILE

ZXA Adjust to receive speeds \_\_\_\_\_.  
 ZXC Pix \_\_\_\_\_ Conditionally accepted.  
 ZXD Send Dashes, please.  
 ZXF You are Floating Fast.  
 ZXH Limits High, reduce \_\_\_\_\_ cycles.  
 ZXJ You are Jumping out of phase.  
 ZXK Is your synchronizing correct?  
 ZXL Limits are Low, increase \_\_\_\_\_ cycles.  
 ZXO Last run defaced due to \_\_\_\_\_.  
 ZXP Go ahead with Pix.  
 ZXS You are floating Slow.  
 ZXV Your modulation is Varying.

Sources: Cable and Wireless Ltd.  
 U. S. Army Communications Manual SIG 439-2.  
 ACP-131 (A), Allied Comms. Procedures.  
 W3AFM



# Great Circle Chart of the World Centered on THE UNITED STATES



To find the great circle bearing to any point in the world from the center of the United States, draw a straight line from the star and note the reading in degrees on the outer scale. The bar scale at the bottom of the chart can be used to determine the distance in statute miles. For bearings to the nearest degree reference is invited to the table on the opposite Page. The outlines of this chart were prepared by the U.S. Coast and Geodetic Survey.



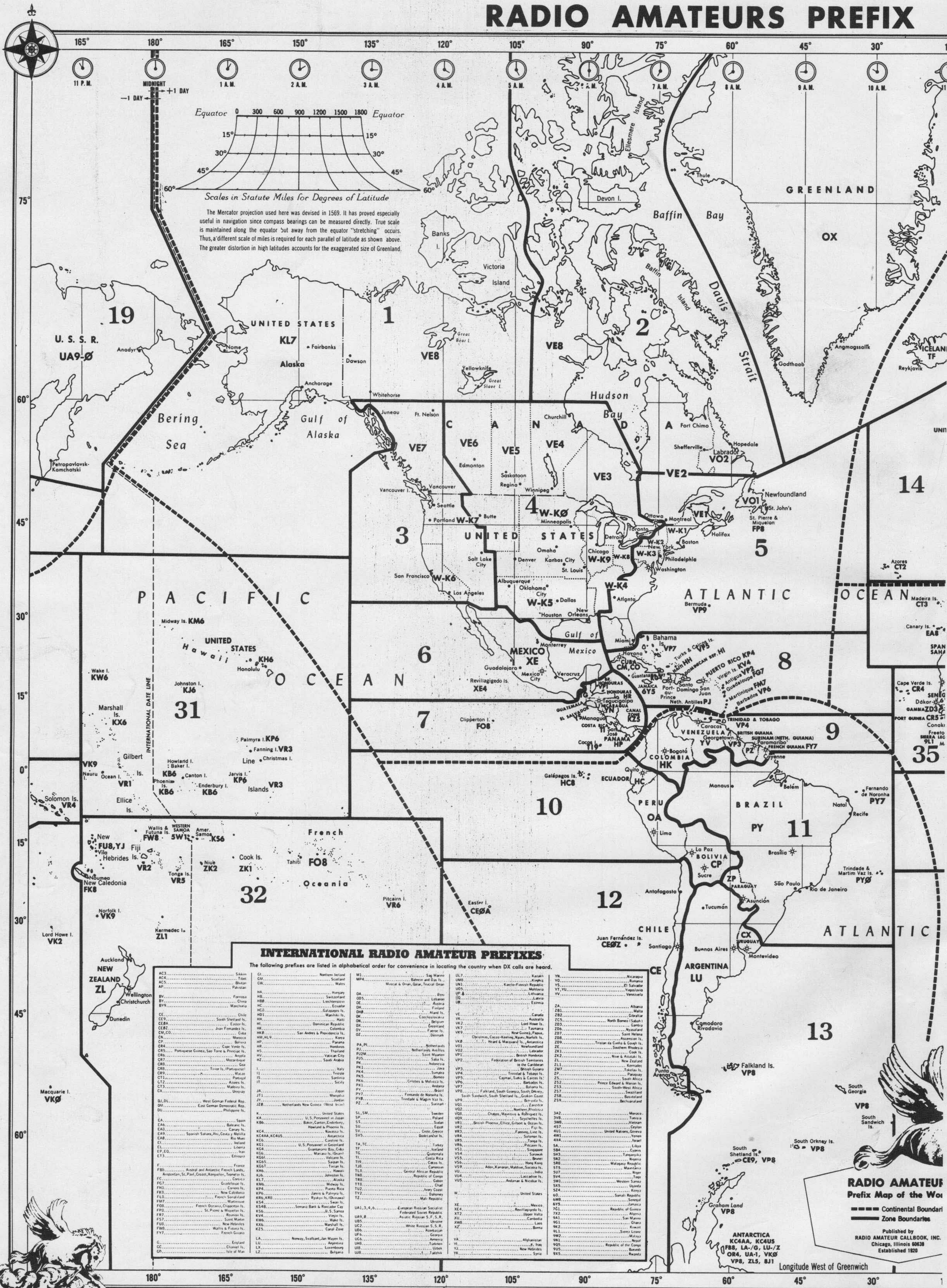
# THE GEOGRAPHICAL CENTER OF THE UNITED STATES

23

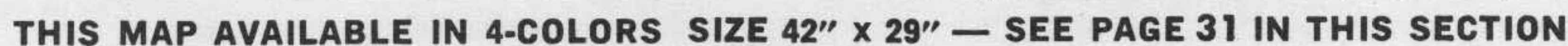
The table below shows the great circle bearing in degrees from the point indicated above to countries throughout the world having licensed radio amateurs. Where cities are shown the bearing to the nearest degree is given. These bearings were compiled from information supplied by the U. S. Coast and Geodetic Survey.

PREFIX	COUNTRY	BEARING	PREFIX	COUNTRY	BEARING	PREFIX	COUNTRY	BEARING	
AC3	SIKKIM	353	KM6	MIDWAY ISLAND	286	VP5	JAMAICA	133	
AC4	TIBET, LHASA	351	KP4	PUERTO RICO	119		TURKS & CAICOS IS.	120	
AC5	BHUTAN	351	KR6,8	RYUKYU IS, OKINAWA	319	VP6	BARBADOS	117	
AP	PAKISTAN, KARACHI	14	KS4	SWAN ISLAND	146	VP7	BAHAMA IS.	123	
BV	FORMOSA, TAIPEI	323	KS6	U S SAMOA	248	VP8	FALKLAND IS.	156	
BY,C	CHINA, CHUNGKING	337	KV4	VIRGIN IS.	117		SOUTH GEORGIA ISLAND	147	
	PEKING	334	KW6	WAKE ISLAND	288		SOUTH ORKNEY IS.	155	
	SHANGHAI	326	KX6	MARSHALL IS.	280	VP9	BERMUDA IS.	95	
CE	CHILE, SANTIAGO	156	KZ5	CANAL ZONE	145	VQ1	ZANZIBAR	60	
CE0A	EASTER ISLAND	190	LA	NORWAY, OSLO	32	VQ2	NORTHERN RHODESIA, LUSAKA	78	
CE0Z	JUAN FERNANDEZ IS.	163		SVALBARD IS.	13	VQ4	KENYA, NAIROBI	58	
CM,CO	CUBA, HAVANA	136		JAN MAYEN ISLAND	24	VQ8	CHAGOS IS.	17	
CN	MOROCCO, CASABLANCA	62	LU	ARGENTINA, BUENOS AIRES	148		MAURITIUS & RODRIGUEZ IS.	53	
CP	BOLIVIA, LA PAZ	147	LX	LUXEMBOURG	42	VQ9	SEYCHELLES	40	
CR4	CAPE VERDE IS.	87	LZ	BULGARIA, SOFIA	39	VR1	GILBERT, ELLICE & OCEAN IS.	270	
CR5	PORTUGUESE GUINEA	85	MP4	MUSCAT & OMAN, MASQAT	23	VR2	FIJI IS.	252	
CR6	ANGOLA, NOVA LISBOA	84	OA	PERU, LIMA	154	VR3	LINE IS.	253	
CR7	MOZAMBIQUE, LOURENCO MARQUES	86	OD5	LEBANON, BEIRUT	37	VR4	SOLOMON IS.	270	
	MOZAMBIQUE	67	OE	AUSTRIA, VIENNA	39	VR5	TONGA, FRIENDLY IS.	245	
CR8	GOA, PORTUGUESE INDIA	9	OH	FINLAND, HELSINKI	26	VR6	PITCAIRN ISLAND	210	
CR8	TIMOR ISLAND, PORTUGAL	296	OH0	ALAND IS.	28	VS1	SINGAPORE	328	
CR9	MACAO	328	OK	CZECHOSLOVAKIA, PRAGUE	38	VS4	SARAWAK	320	
CT1	PORTUGAL, LISBON	59	ON	BELGIUM, BRUSSELS	42	VS5	BRUNEI	317	
CT2	AZORES IS.	67	OX	GREENLAND, GODTHAAB	32	VS6	HONG KONG	328	
CT3	MADEIRA IS.	68	OY	FAEROES IS.	35	VS9	ADEN, ADEN	41	
CX	URUGUAY, MONTEVIDEO	146	OZ	DENMARK, COPENHAGEN	34	VU	INDIA, BOMBAY	9	
DJ,DL	WEST GERMAN FEDERAL REP, BONN	41	PA,PI	NETHERLANDS, AMSTERDAM	40		CALCUTTA	353	
DM	E. GERMAN DEMOCRATIC REP, BERLIN	37	PJ	NETHERLANDS ANTILLES	128		NEW DELHI	4	
DU	PHILIPPINE IS, MANILA	317	PJ2M	SINT MAARTEN	115	VU4	LACCADIVE IS.	10	
EA	SPAIN, MADRID	55	PK1,2,3	JAVA, BATAVIA	319	VU5	ANDAMAN NICOBAR IS.	346	
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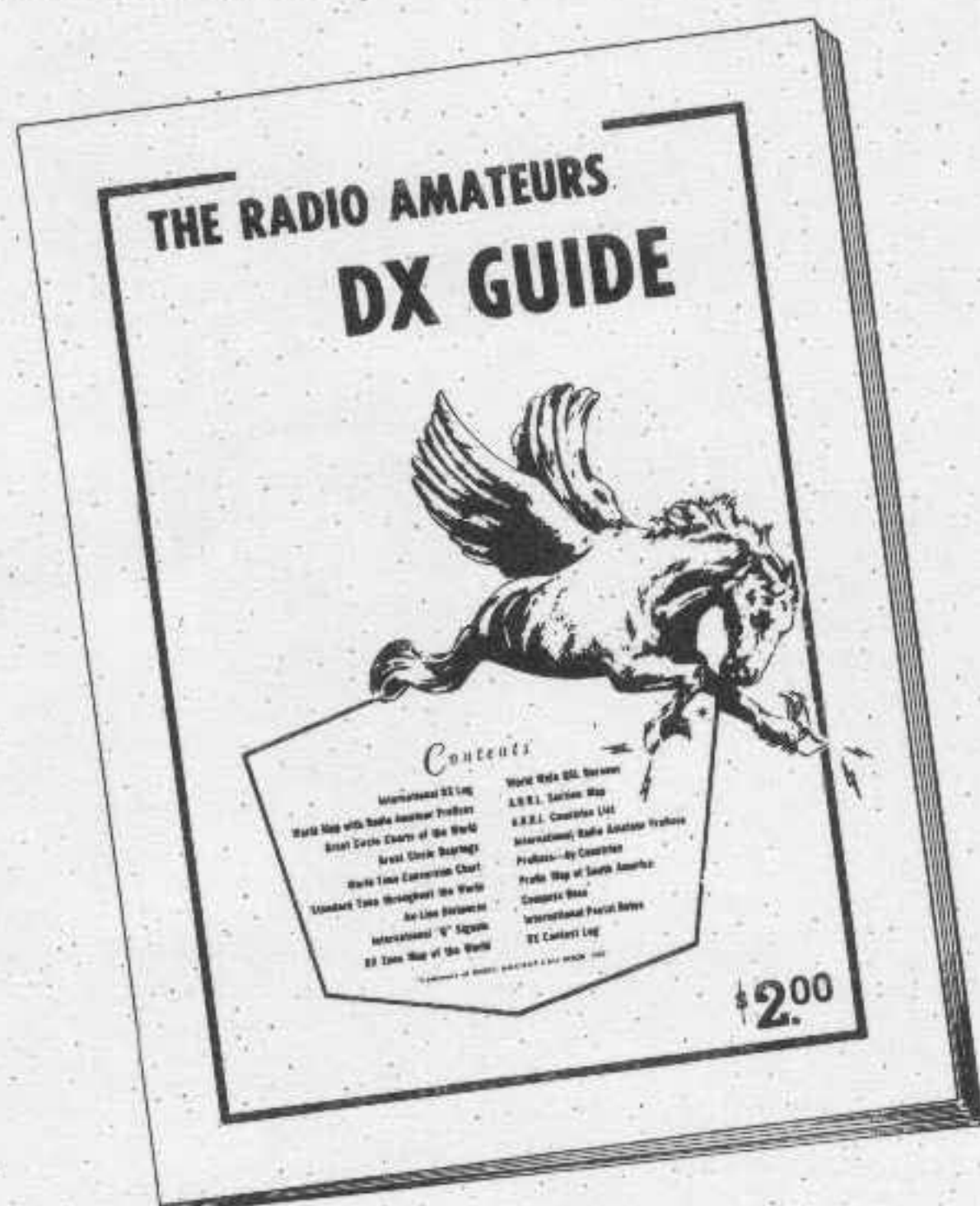
# INTERNATIONAL "Q" SIGNALS

Abbreviation	Question	Answer or Advice	Abbreviation	Question	Answer or Advice
QRA	What is the name of your station?	The name of my stations is . . .	QSY	Shall I change to transmission on another frequency?	Change to transmission on another frequency [or on . . . kc/s (or Mc/s)].
QRB	How far approximately are you from my station?	The approximate distance between our stations is . . . nautical miles (or kilometres)	QSZ	Shall I send each word or group more than once?	Send each word or group twice (or . . . times).
QRD	Where are you bound and where are you from?	I am bound for . . . from . . .	QTA	Shall I cancel telegram number . . . as if it had not been sent?	Cancel telegram number . . . as if it had not been sent.
QRG	Will you tell me my exact frequency or that of . . . ?	Your exact frequency (or that of . . . is . . . kc/s (or Mc/s).	QTB	Do you agree with my counting of words?	I do not agree with your counting of words; I will repeat the first letter or digit of each word or group.
QRH	Does my frequency vary?	Your frequency varies.	QTC	How many telegrams have you to send?	I have . . . telegrams for you (or for . . .).
QRI	How is the tone of my transmission?	The tone of your transmission is . . . (1. Good; 2. Variable; 3. Bad).	QTE	What is my TRUE bearing from you? or What is my TRUE bearing from . . . (call sign)? or What is the TRUE bearing of . . . (call sign) from . . . (call sign)?	Your TRUE bearing from me is . . . degrees (at . . . hours) or Your TRUE bearing from . . . (call sign) was . . . degrees (at . . . . . hours) or The TRUE bearing of . . . (call sign) from . . . (call sign) was . . . degrees at . . . hours).
QRK	What is the readability of my signals (or those of . . . )?	The readability of your signals (or those of . . . ) is . . . (1. Unreadable; 2. Readable now and then; 3. Readable, but with difficulty; 4. Readable; 5. Perfectly readable).	QTH	What is your position in latitude and longitude (or according to any other indication)?	I am going to send two dashes of ten seconds each followed by my call sign (repeated . . . times) [on . . . kc/s (or Mc/s)] or I have requested . . . to send two dashes of ten seconds followed by his call sign (repeated . . . times) on . . . kc/s (or Mc/s).
QRL	Are you busy?	I am busy (or I am busy with . . . ). Please do not interfere.	QTI	What is your TRUE track?	My position is . . . latitude . . . longitude (or according to any other indication).
QRM	Are you being interfered with?	I am being interfered with.	QTL	What is your TRUE heading?	My TRUE track is . . . degrees.
QRN	Are you troubled by static?	I am troubled by static.	QTN	At what time did you depart from . . . (place)?	My speed is . . . knots (or kilometres per hour).
QRO	Shall I increase power?	Increase power.	QTO	Have you left dock (or port)? or Are you airborne?	My TRUE heading is . . . degrees.
QRP	Shall I decrease power?	Decrease power.	QTP	Are you going to enter dock (or port)? or Are you going to alight (or land)?	I departed from . . . (place) at . . . hours.
QRQ	Shall I send faster?	Send faster ( . . . words per minute).	QTR	What is the correct time?	I have left dock (or port) or I am airborne.
QRR	Are you ready for automatic operation?	I am ready for automatic operation. Send at . . . words per minute.	QTS	Will you send your call sign for . . . minute(s) now (or at . . . hours) [on . . . kc/s (or Mc/s)] so that your frequency may be measured?	I am going to enter dock (or port) or I am going to alight (or land).
QRS	Shall I send more slowly?	Send more slowly ( . . . words per minute).	QTV	Shall I stand guard for you on the frequency of . . . kc/s (or Mc/s) (from . . . to . . . hours)?	I am going to communicate with your station by means of the International Code of Signals.
QRT	Shall I stop sending?	Stop sending.	QTX	Will you keep your station open for further communication with me until further notice (or until . . . hours)?	The correct time is . . . hours.
QRU	Have you anything for me?	I have nothing for you.	QUA	Have you news of . . . (call sign)?	I will send my call sign for . . . minute(s) now (or at . . . hours) [on . . . kc/s (or Mc/s)] so that my frequency may be measured.
QRV	Are you ready?	I am ready.	QUB	Can you give me, in the following order, information concerning: visibility, height of clouds, direction and velocity of ground wind at . . . (place of observation)?	My station is open from . . . to . . . hours.
QRW	Shall I inform . . . that you are calling him on . . . kc/s (or Mc/s).	Please inform . . . that I am calling him on . . . kc/s (or Mc/s).	QUC	What is the number (or other indication) of the last message you received from me [or from (call sign)]?	Stand guard for me on the frequency of . . . kc/s (or Mc/s) (from . . . to . . . hours).
QRX	When will you call me again?	I will call you again at . . . hours [on . . . kc/s (or Mc/s)].	QUD	Have you received the urgency signal sent by . . . (call sign of mobile station)?	I will keep my station open for further communication with you until further notice (or until . . . hours).
QRY	What is my turn?	Your turn is Number . . . (Relates to communication.)	QUF	Have you received the distress signal sent by . . . (call sign of mobile station)?	Here is news of . . . (call sign).
QRZ	Who is calling me?	You are being called by . . . [on . . . kc/s or Mc/s)].	QUG	Will you be forced to alight (or land)?	Here is the information requested . . .
QSA	What is the strength of my signals (or those of . . . )?	The strength of your signals (or those of . . . ) is . . . (1. Scarcely perceptible; 2. Weak; 3. Fairly good; 4. Good; 5. Very good).	QUH	Will you give me the present barometric pressure at sea level?	The number (or other indication) of the last message I received from you [or from . . . (call sign)] is . . .
QSB	Are my signals fading?	Your signals are fading.			
QSD	Is my keying defective?	Your keying is defective.			
QSG	Shall I send . . . telegrams at a time?	Send . . . telegrams at a time.			
QSI	What is the charge to be collected per word to . . . including your internal telegraph charge?	The charge to be collected per word to . . . including my internal telegraph charge is . . . francs.			
QSK	Can you hear me between your signals?	I can hear you between my signals.			
QSL	Can you acknowledge receipt?	I am acknowledging receipt.			
QSM	Shall I repeat the last telegram which I sent you, or some previous telegram?	Repeat the last telegram which you sent me [or telegram(s) number(s) . . . ].			
QSN	Did you hear me [or . . . (call sign)] on . . . kc/s (or Mc/s)?	I did hear you [or . . . (call sign) on . . . kc/s (or Mc/s).			
QSO	Can you communicate with . . . direct or by relay?	I can communicate with . . . direct (or by relay through . . . ).			
QSP	Will you relay to . . . free of charge?	I will relay to . . . free of charge.			
QSQ	Have you a doctor on board [or is . . . (name of person) on board]?	I have a doctor on board [or . . . name of person) is on board].			
QSU	Shall I send or reply on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . . )?	Send or reply on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . . ).			
QSV	Shall I send a series of V's on this frequency [or . . . kc/s (or Mc/s)]?	Send a series of V's on this frequency [or . . . kc/s (or Mc/s)].			
QSW	Will you send on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . . )?	I am going to send on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . . ).			



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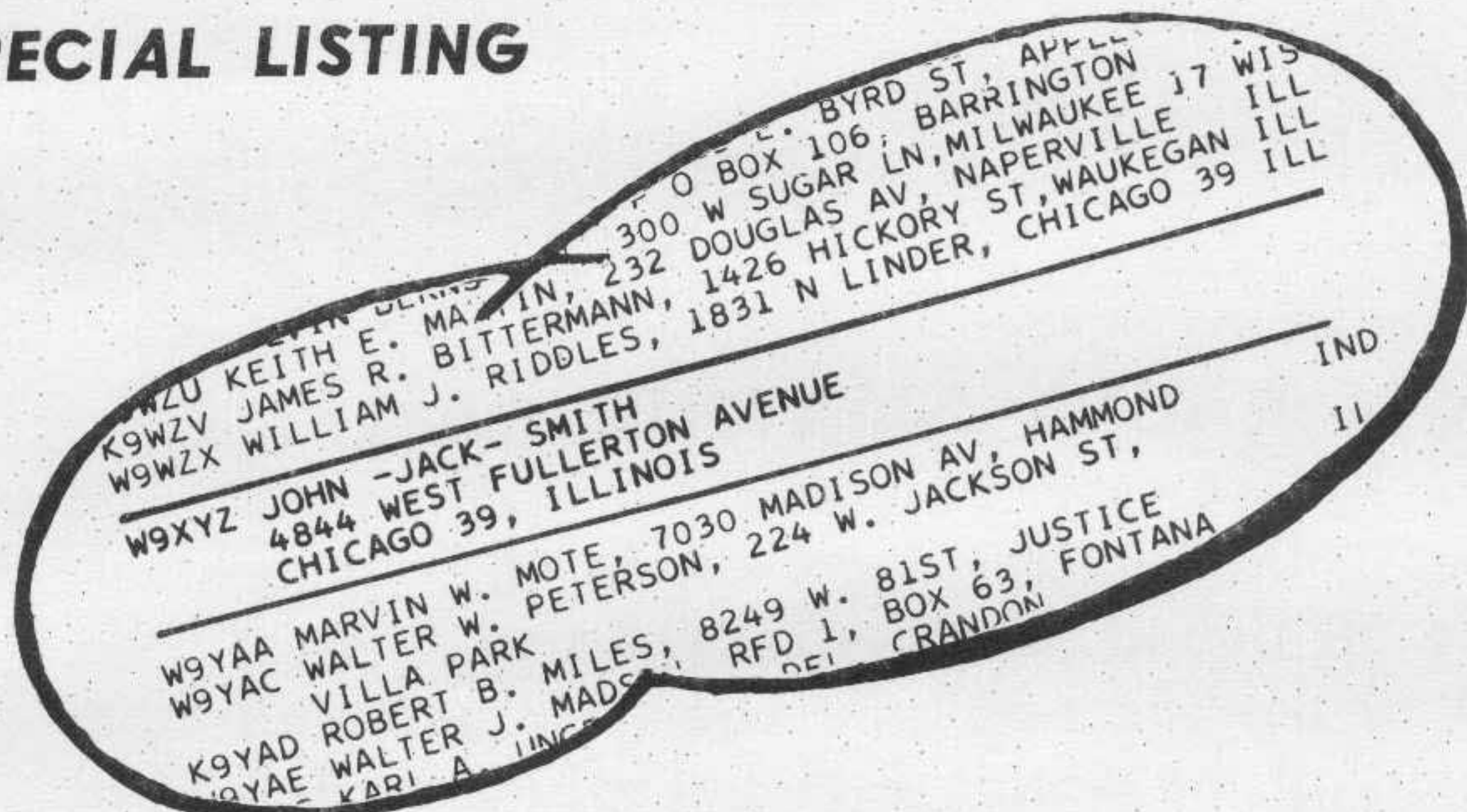
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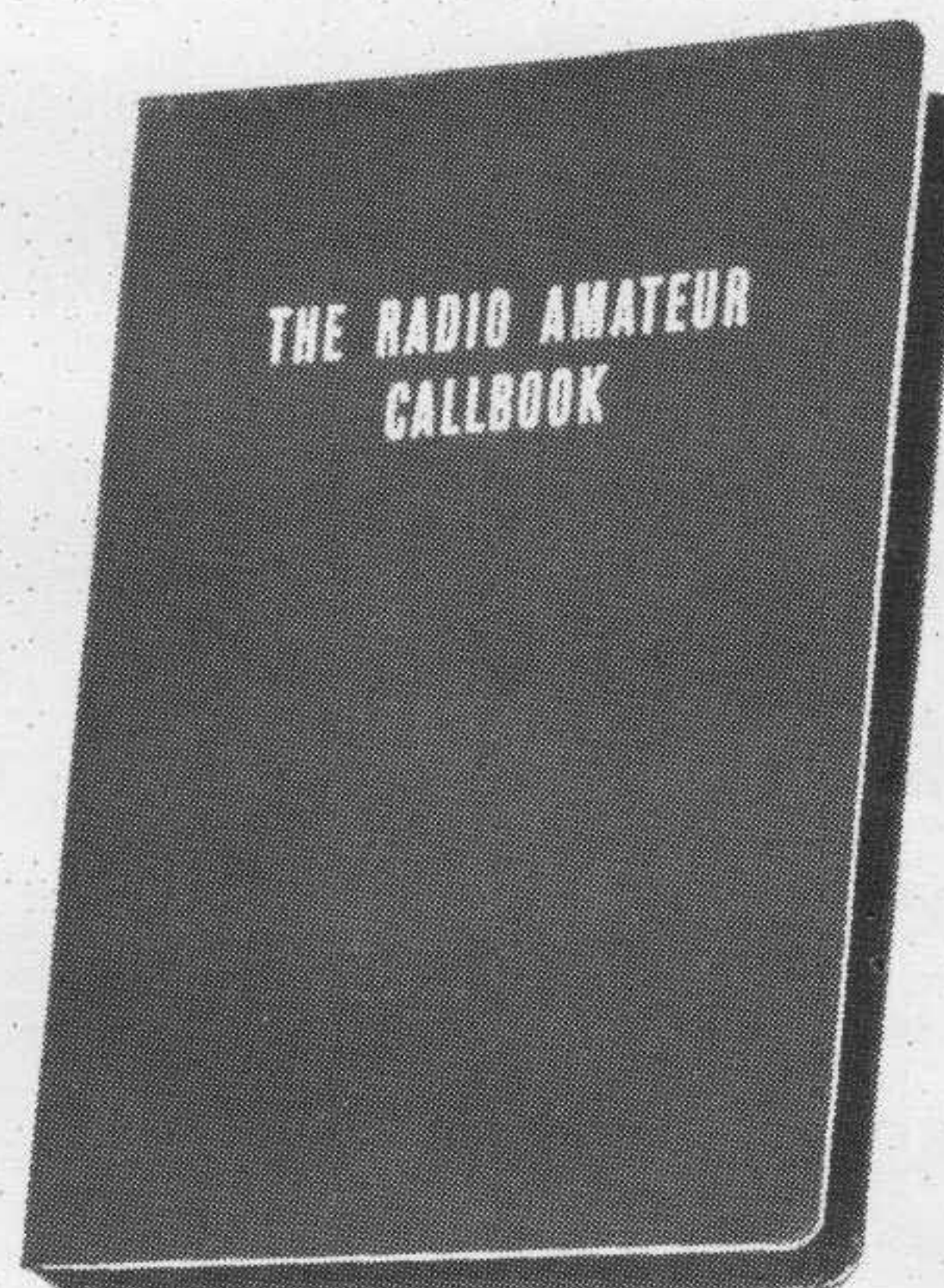
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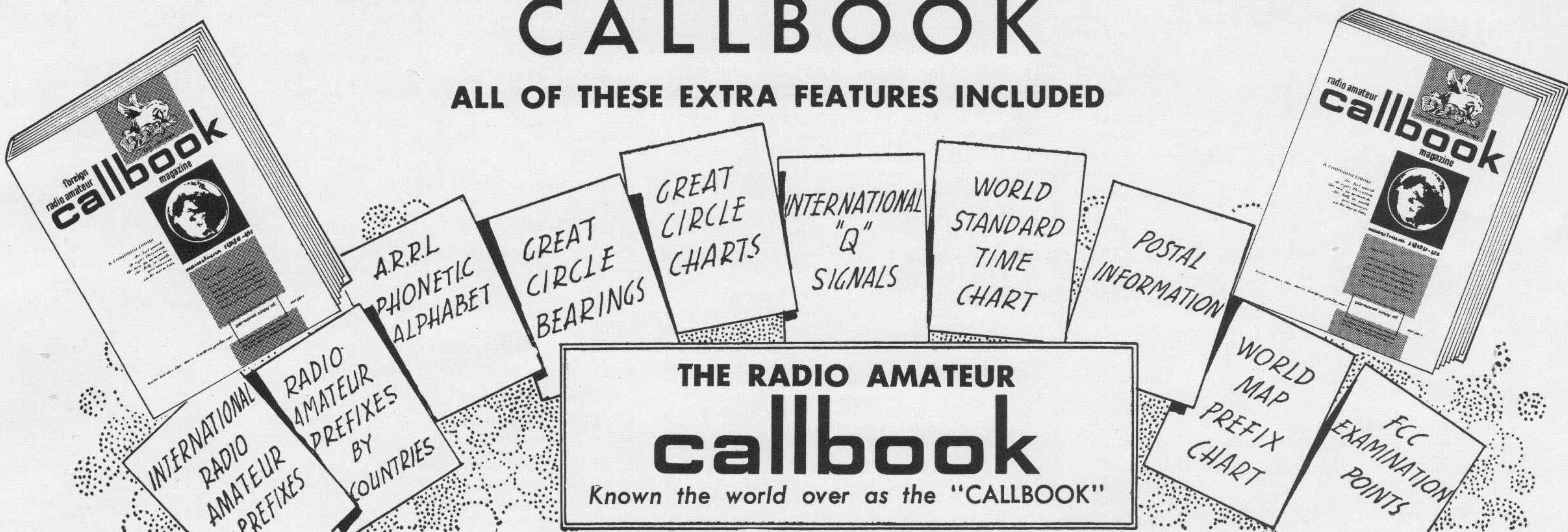
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( ) Winter	( ) Winter	( ) Winter	( ) Winter

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4844 W. FULLERTON AVE.  
CHICAGO 39, ILLINOIS



# ENGRAVED NAMEPLATES

## FOR YOUR DESK, DOOR, RIG AND YOU!

Your name and call letters, or office title, engraved on any one of these attractive, modern design, duo-color, laminated phenolic nameplates. An efficient, thoughtful and important item for your home or office.

### FOR YOUR DESK

1" x 7"  
2" x 8"

Select the satin smooth, walnut grained or jet black nameplate with white letters (up to 20 letters and numbers per line), mounted in satin gold or silver finish, anodized aluminum holder. Two sizes as illustrated above.

### FOR YOUR DOOR or rig

1" x 4"  
1" x 7"  
2" x 8"

Nameplates in three sizes for your door or rig in walnut grained or jet black, with white letters. Up to 18 letters per line on the 1" x 4" plate. Up to 20 letters on the others. Each with special adhesive back for immediate installation. No tools needed.

### EXECUTIVE DESK SET

2" x 8"

Handsome desk set with either jet black or walnut grained nameplate (white letters), mounted in satin gold or silver anodized aluminum holder. Up to 20 letters per line. Two standard ball point pens included. Rear compartment for business cards, pads, etc.

BARBARA

W9XYZ

**LAPEL PIN (with safety catch)**  
Your name and/or call letters engraved on a duo-color plastic pin. Size 1/2" x 2". Available in white letters on black, blue or red background. Also black letters on white background. Up to 15 letters—1 line only.  
*Illustrated one-half size*

\$1.00

**Barby's** INC

4842 Fullerton Ave.,  
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OR YOUR MONEY BACK**

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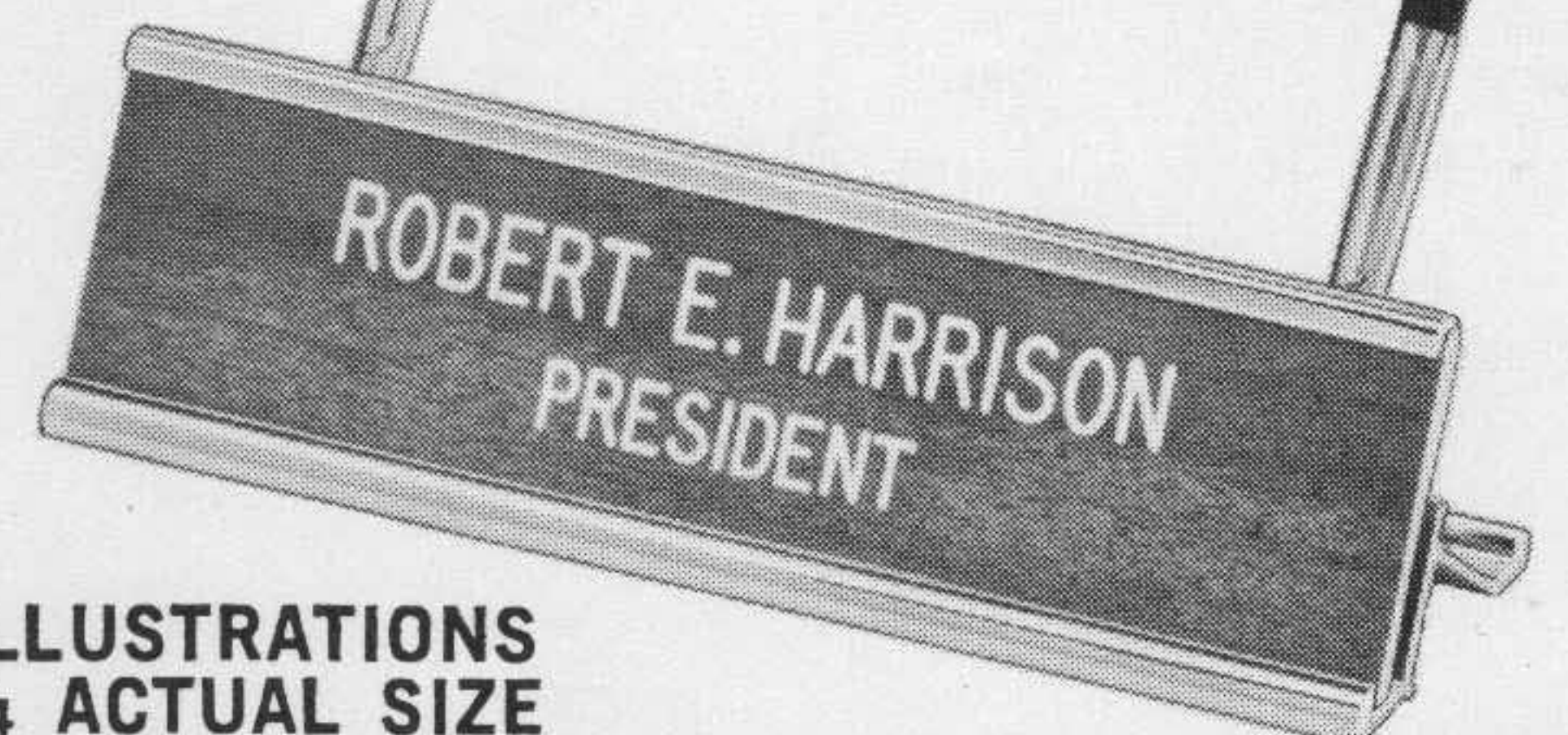
\$1.75 \$1.75  
\$1.75 \$2.25  
\$2.25 \$2.75

\$5.75 \$6.25

Shipments to U.S.A., Possessions and Canada are postpaid. Elsewhere add \$1.00 registration and handling via surface mail; \$2.00 for airmail.



ANY WORDING YOU WANT  
ON ANY NAMEPLATE



ILLUSTRATIONS  
1/4 ACTUAL SIZE

### HANDY ORDER FORM FOR ENGRAVED NAMEPLATES

SEND ORDER TO BARBY'S, INC., 4842 FULLERTON AVENUE, CHICAGO, ILL. 60639

PRINT wording just as it is to appear on your nameplate or pin

☐ Enclose free gift card

name to appear

Total Amount \$ \_\_\_\_\_  
Illinois residents  
add 4% Retailers'  
Occupation Tax \_\_\_\_\_  
Amount Enclosed \$ \_\_\_\_\_

Kind of Nameplate	Color of Nameplate	Line Arrangement. Check one if 2 lines	Color of Holder if Desk or Exec. Set
<input type="checkbox"/> Desk	<input type="checkbox"/> Walnut Grained <input type="checkbox"/> Jet Black	<input type="checkbox"/> All letters same size <input type="checkbox"/> Large letters over small <input type="checkbox"/> Small letters over large	<input type="checkbox"/> Gold <input type="checkbox"/> Silver
<input type="checkbox"/> Door or rig	<input type="checkbox"/> Walnut Grained <input type="checkbox"/> Jet Black	<input type="checkbox"/> All letters same size <input type="checkbox"/> Large letters over small <input type="checkbox"/> Small letters over large	
<input type="checkbox"/> Exec. Desk Set	<input type="checkbox"/> Walnut Grained <input type="checkbox"/> Jet Black	<input type="checkbox"/> All letters same size <input type="checkbox"/> Large letters over small <input type="checkbox"/> Small letters over large	<input type="checkbox"/> Gold <input type="checkbox"/> Silver
<input type="checkbox"/> Lapel Pin	<input type="checkbox"/> Jet Black <input type="checkbox"/> White <input type="checkbox"/> Red <input type="checkbox"/> Blue		

Ship to: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

THANK YOU FOR YOUR ORDER



# Exclusive!

## RADIO AMATEUR EMBLEMS

### ENGRAVED WITH YOUR CALL LETTERS



*Lapel Pin*

with clutch back.

(May also be used as a tie-tac.)

Item 1-G, 20K gold plated Each.....\$5.00  
Item 1-R, Rhodium plated \*F.E.T..... .50  
\$5.50

*Tie Bar*



Item 2-G, 20K gold plated Each .....\$5.00  
Item 2-R, Rhodium plated \*F.E.T. .... .50  
\$5.50



*Ladies Pin*

(with safety catch)

Item 3-G, 20K gold plated Each .....\$5.00  
Item 3-R, Rhodium plated \*F.E.T. .... .50  
\$5.50

*Charm*

Item 4-G, 20K gold plated Each .....\$5.00  
Item 4-R, Rhodium plated \*F.E.T. .... .50  
\$5.50



*Bracelet*

for charm



Item 5-G, 20K gold plated Each .....\$1.50  
Item 5-R, Rhodium plated \*F.E.T. .... .15  
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† Order any two emblems of your choice at the same time.....\$8.00  
\*F.E.T. .... .80  
\$8.80

\*Federal Excise Tax



*Key Ring*

for charm

Item 6-G, 20K gold plated Each .....\$1.50  
Item 6-R, Rhodium plated \*F.E.T. .... —  
\$1.50

*I am Pegasus*

... according to legend, winged and with blazing hoofs, mane flying, crossed the heavens with such speed I caused the crash of lightning and the roar of thunder.

Of course, this is a myth, but what an exciting thought—to race across the heavens with the speed legend gave me. Naturally it's really impossible for me to have accomplished such a feat but not for you . . . a radio amateur.

You can reach the corners of the world . . . with a turn of a knob you can cross the heavens—the whole world is yours . . . adventure is yours.

We have much in common—my legend of adventure—your history of adventure, as part of amateur radio.

We join our past, present and future here, in this emblem.

A brand new, modern design, emblem for radio amateurs to display their own call letters. A truly beautiful emblem you will be proud to wear.

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See description of Atlas on next page.

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<input type="checkbox"/> All 3 maps plus Free Radio Amateurs World Atlas.....\$2.50	<input type="text"/>

Call letters\_\_\_\_\_

Amount Enclosed..... \$\_\_\_\_\_

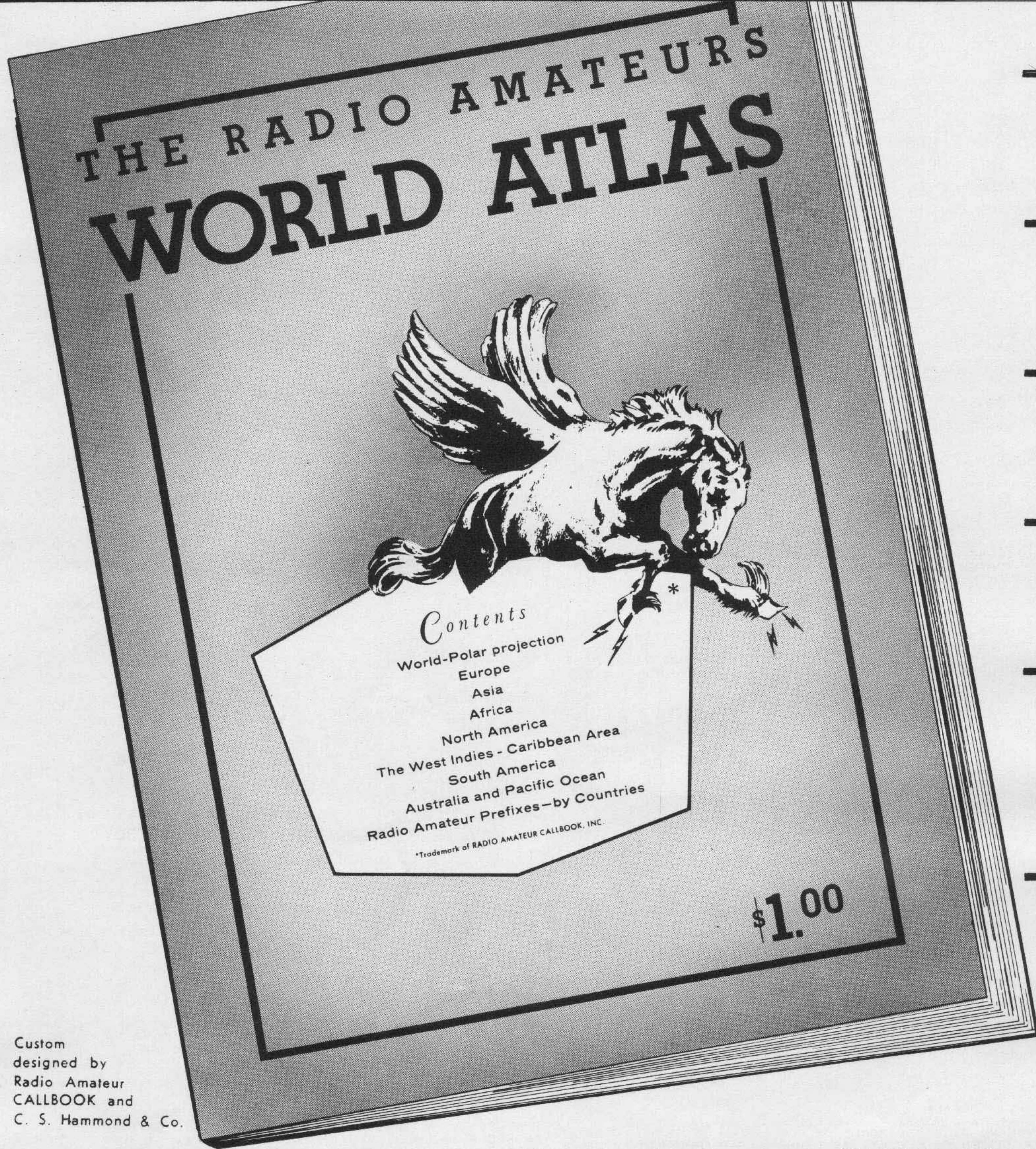
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